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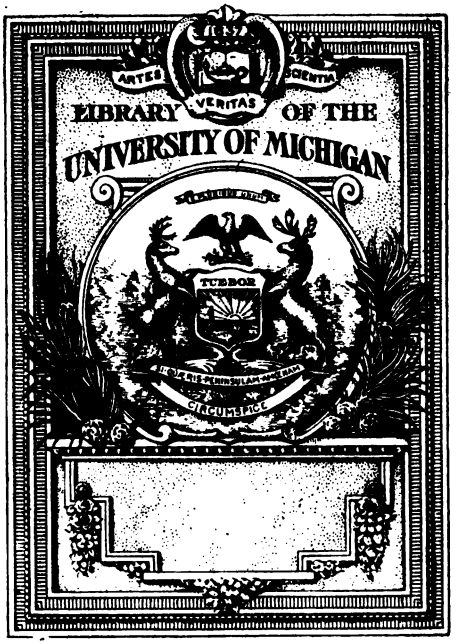

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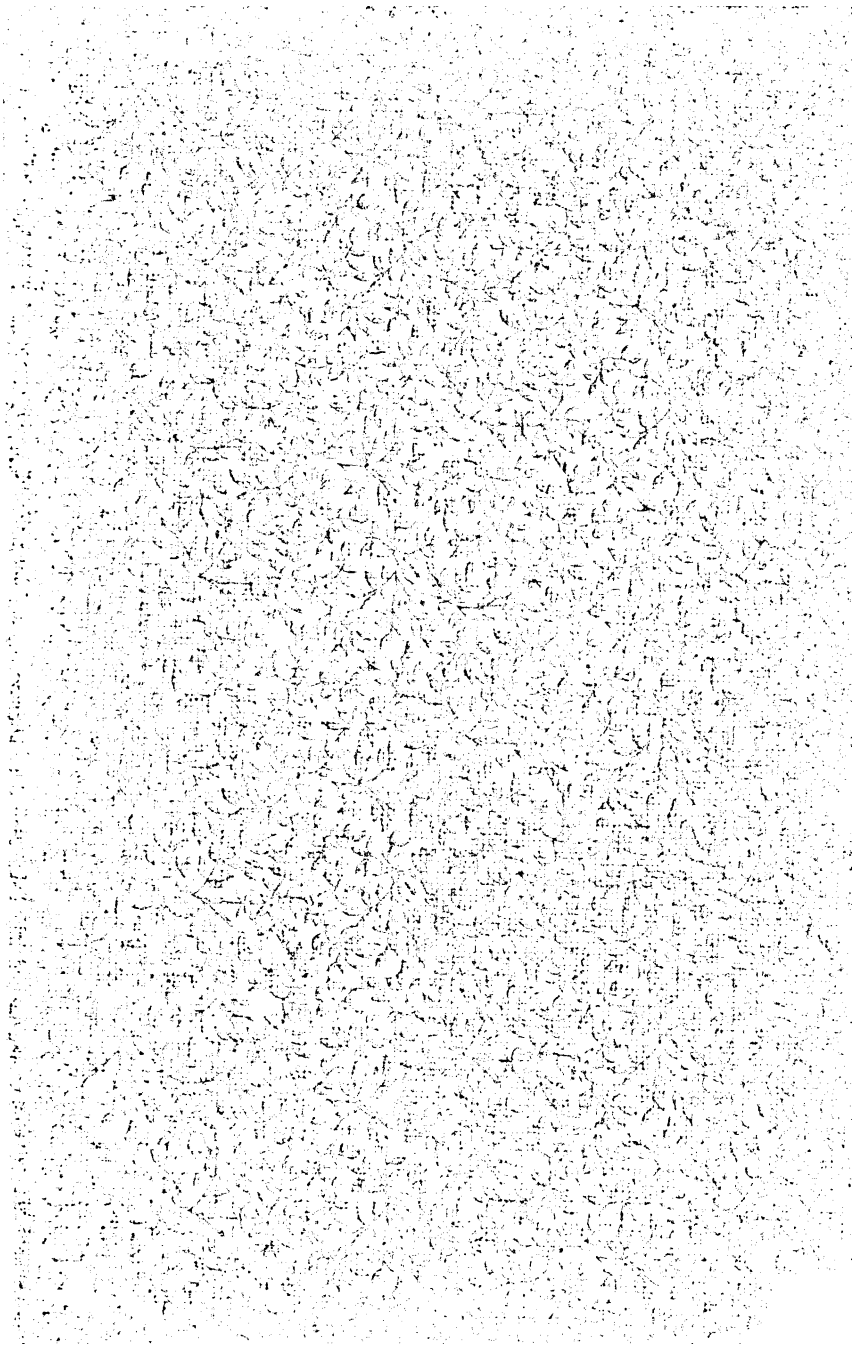

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PREFACE.

THE year last past has been one of prize-offering, prize-giving, and prize-taking. MOSAICS has been made to fall into line, and a large section of it gives space to the helpful words and suggestive engravings of the productions of the victors. This novel and valuable feature must serve a useful purpose. The usual review occupies the first section, and the contributions of well-known writers fill the rest of the pages of our thirty-first annual.

One of the refreshing signs of the times arises from the fact that the greater number of the prizes of the year were awarded to the younger members of the fraternity. The more careful attention to the principles of art applicable to photography also gives much hope for the future. More earnestness, less attempt at clap-trap work, and less slovenliness in technique are also apparent on all sides. Photography is here to live and to supply a living to many, if they continue carefully to do their best. Carry MOSAICS about with you, read it, and be convinced.

EDWARD L. WILSON.

NEW YORK CITY, December 1, 1894.

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PHOTOGRAPHIC MOSAICS, 1895.

SECTION I.

THE REVIEW OF THE YEAR.

THE OUTPUT OF 1894.

NOBODY feels like saying very much about the year last past, because it is generally regarded as a year of trial and disappointment. It is not fair to ourselves, however, to judge too narrowly. The year 1894 doubtless started a great many good things which must yet be productive of fine results. We know that many things—many occurrences—many of the persons we meet in life, resemble, in a sense, the salts of say, bromo-caffein. As soon as they are touched by the least bit of water they go off into a state of effervescence, and seem to be of no service. But this last is not true. Properly taken, both bromo-caffein and all the other things will serve a good and useful purpose. We must not judge them too narrowly, simply because the results which come about are not

just what we expected or planned for. Effervescence does not end things, it only changes them. Therefore the World's Fair, the conventions, the efforts toward progress, and the elevation of art, together with the depression in business, which have dissolved and are of the past, have only changed things as to us, and good is coming out of them. MOSAICS is no place for moralizing. We all intend to be moral and to regard our vocation as one of the most serious and most dignified, most honorable, and most splendid of the walks of life; we all desire to thank God that we are in it, and that no amount of effervescence can cause us to lose our enthusiasm for it. Let us look into the beaker and see what is left for us—of 1894—to help us for 1895. So far as the editorial eyes of MOSAICS can penetrate, the jewel-pieces which follow seem to appear of most advantage. Let us all make the most of them and the best of them. *Photography forever!*

BUSINESS.

During the past summer the prevailing business depression produced much grumbling about the decay of professional photography as a business. Among the many remedies suggested the common-sense advice given at the St. Louis Convention by President Heimberger deserves record here. Mr. Heimberger said:

"It has been the endeavor of some to enlist the influence of the Association in the vain attempt of regulating the price of photographs. But as well try to stay the waters of the Mississippi: dam them up,

and there will be an overflow. Obligate the members of this Association to a specified price, and they will either have to violate that obligation or starve. Cheap prices and cheap work are two different things; the former will always prevail, more or less, according to the surroundings and business tact of the individual photographer; the latter is gradually giving way in the minds of the people, and a better grade of work is being appreciated and demanded. Each of us should see to it that we are prepared to meet the demand for a higher standard. Photographers should not be content to occupy a lower plane in art matters than that possessed by their patrons. Where such proves the case there will be none but the cheapest grades of work called for, and that at the lowest price prevailing."

Let us all carry this with us until the next Convention.

The importance of a knowledge of manipulatory methods, of a little art, and a little science, has been so steadily impressed upon the fraternity by all who have put pens to paper during these fifty years that the last thing dreamt of by the young photographer starting in business, or the old worker, for that matter, is that he must be, above all things else, a capable business man.

The consequence of this lack of businesss training is abundantly evident in the present condition of photography as a business.

Let the photographer who desires to improve his condition during the coming season give more attention to his business methods. Make the studio at-

tractive; keep a close watch over the show-windows; replace disorder in your business premises with order and system; secure a thoroughly capable worker to handle your patrons in the reception-room; get your employés to realize that their places depend upon the quality and carefulness of the work they do; watch the disposal of the materials you distribute for use in this or that department; look personally at every piece of work before it goes out, and let only good work pass.

Then, outside the studio, make your capabilities known by judicious and persistent advertising; watch local industries, and see whether your capabilities cannot find among them openings for usefulness; keep your business before the public; study the character of your patronage and grade your prices to meet reasonable expectations. By such and many other sorts of business enterprise which will suggest themselves, prosperity may be and is every day being attained even in professional photography. It is possible that those who follow this course will find that "business" is as hard a problem as negative making, but perseverance will show that at least it is more profitable—as an end.—THOMAS AQUINAS.

There is a means which has been adopted by and found immeasurably more successful financially than any other basis, viz.: the basis of furnishing *good* work at *moderate prices;* and I feel perfectly safe in *assuring business success* to any photographer who uses proper care in the selection of a location, who gives proper attention to neatness in his rooms, and who is considerate and courteous in his treatment of

patrons whom he supplies with a *high grade of work* at *fair prices.* Such a man finds himself supplying a popular, never-failing demand—such a demand as neither the "Cheap John" nor the high-priced crank can either fill or take away from him; and he need, therefore, have no fears of any permanent loss of patronage because of such competition.

Good work in every branch of industry ever has been, and will doubtless continue to be, in popular demand, and will be rewarded with fair if not liberal compensation; and my observations have led to the conclusion that almost without exception those who have made a financial success of photography as a business have laid their plans on this basis. Success comes to those who apparently comprehend the fact that at least nineteen-twentieths of their patrons are neither paupers nor millionaires, but plain and for the most part well-to-do people, who want good work and are willing to pay fair prices for it.—JAMES H. SMITH.

LANDSCAPE AND OUTDOOR WORK.

The old, old story is oft repeated, is it not? In a late number of the *Rundschau* the following sage advice was given editorially. It is repeated here now because it is not only in season, but it is just as good as it was twenty years ago:

"In landscape photography the relative position of the sun and the time of day must be taken into account first. As to the former, it is not true that exposures toward the sun invariably produce fog. With

proper protection of the objective from direct sunlight, clear, fine negatives may be made.

"Exposure and diaphragm must harmonize with the actinic strength of the light and time of day.

"A slight drizzly rain, if the light is good, is no hindrance.

"Fine negatives may be obtained directly after a thunder-storm, when the air is clearest and the sky partly covered with clouds, giving tone to the picture and contrast in the background.

"Proper attention and care in focussing is very important. The foreground should be sharpest. If not suitable naturally, the foreground may be made so artificially by setting out branches of trees, placing rocks, etc. If persons are to be introduced, avoid making them up for the occasion, so to speak. They should appear unconcerned and easy, never looking toward the camera.

"First study the landscape in all its relations, then expose.

"During development the most strongly illuminated objects will, of course, come out first. If there is reason to fear over-development of these high-lights, it is advisable to wash the plate when they are well out, then drain the plate of all surface water, and proceed to paint the high-lights with bromide of potash, using a suitable brush. Now rinse, and go on with the development to proper density."

Mr. W. B. Swift says: "That ability to select landscapes with a degree of certainty as to their merit as pictures is of the utmost value to those who would do any serious work in art. In selecting it is often

advantageous to write down a list of characteristics one considers requisite, as, for instance, the following:

"1. A broken foreground.

"2. Retreating middle distance.

"3. A varied position.

"4. A place for figures.

"There are many landscapes which will lack one or more of these items and yet be beautiful; but it is well at first to work on a limited ground, and branch out as one's knowledge of art and its laws requires. It may be said here that the reading of books on art and the study of what others have considered beautiful will be found an aid in selecting the best landscapes, and will be as needful in learning all the various details of balance of lines, composition, light and shade, and values.

"But let those who read books have an eye to that weakness, which seems inborn in some, of using the materials which the author has selected to illustrate the principles, and huddle them together in a somewhat different form, and to call it one's own, or venture to call it art. Bits of pretty things packed together in this way do not make beauty. You will find that many views which possess all these characteristics will fail to be artistic, and thus perhaps lead many to doubt the value of this guide. In reality, a picture must have unity and harmony of parts with the whole in order to become a truly choice landscape, and what one might call of exhibition standard."

COLOR, COMPOSITION, AND FIGURES.

When studying in Nature it should be borne in mind that the effect on the retina is influenced by the amount of light in the pupil of the eye. When the eye is open widely the objects stand out crudely, but now drop the lid slowly over the eye and the crudeness disappears. Colors become more softened as the eyes close until the grayness of the atmosphere is spread over everything like a veil, softening outlines and harmonizing tints. Professional photographers are often heard to exclaim against the atmosphere and its effects, but it is a great comfort to the true artist, and the more of it you can embody in your pictures the better.

In making a study from Nature in color you should select a pleasing composition. Consider the scene as divided into three principal portions, *foreground*, *mid-distance*, and *distance*. Observe with partly closed eyes the prevailing colors of those parts and how they are connected together. As a general rule, browns and broken greens predominate in the foreground, grays and purples in mid-distance, and purplish-blue grays in extreme distance.

In making use of figures and animals, a consideration should be, Why introduce them? What purpose do they serve? What figures or animals and what positions or arrangements will best answer the purpose? Are they needed for the idea of activity or repose, or simply to improve the composition. Don't overlook the important law of perspective as to size. Amateurs fail here frequently. A lady of

culture, a teacher, once asked the writer, "What those mice on a distant hill were there for?" pointing with her pencil to some sheep in the mid-distance of the picture. Omit no opportunity when out with your camera to secure figures in every variety of circumstance, costume, and position, and by all means avoid any conscious posing "to be taken." Ask yourself, in what does the vitality, spirit, and charm of a figure lie? Then aim to express this. It will often be found in some hardly perceptible bend of line, or touch of dark or subtle arrangement of color.—C. A. SNOW.

PHOTOGRAPHERS' SPECIMENS.

Dealing with this important subject John A. Tennant gives somewhat pointed advice, which, if followed, will surely result in the improvement of the photographer's display of work. He says:

"There is no doubt in my mind that if ever the photographer stands in need of a candid friend, it is when he selects and arranges the display of his work, with which he fondly hopes to attract new business and charm the community upon whose support he depends. Plainly speaking, the average reception-room and show-window, especially in the smaller cities of, say, ten to fifty thousand inhabitants, is simply a chamber of horrors. The chief fault would seem to lie in the preponderance of quantity over quality in the display. This is the result of lack of the critical faculty (on the part of the photographer) in selection.

"Digressing for a moment, the arrangement of the

reception-room itself has a definite relation to the specimen question. A diamond in a dust-heap does not sparkle as it would if set in a cluster of pearls. Many reception-rooms, even in our metropolitan galleries, more closely resemble storage warehouses than the visitors' entrance to a place devoted to the pursuit of fine art. Here, first of all, the critical faculty should find a fruitful field for reform. The conglomerate array of property furniture, of all sizes, colors, and forms; the imitation grass mats; those abominable goatskin rugs, which dealers say "look so attractive and fetching in Aristotype pictures;" the miscellaneous collection of palms, potteries, silk fripperies, and easels, not to speak of the confused heaps of photographic work in all stages of completion and destruction, are, one and all, an offence against good taste.

"Having cleared out the rubbish and incongruities of former displays, and chosen new material, with our eyes upon the misfortunes of our neighbor, we are ready to make up a collection which will show our facilities in various branches, attest our skill in certain specialties, and create a favorable impression. Care is now needed in arrangement. Remember the fault of allowing quantity to frown down upon quality. It may be that we will do well if we take away half of the pictures prepared, and place only the other half on display, reserving the remainder for a new display after a few weeks have passed. By this means we not only secure a renewal of the specimens within a reasonable period of time, but we make our display more creditable by placing a few really good ex-

amples of work, instead of crowding it with work of variable quality. Care is necessary also in the arrangement of the pictures individually; in the opposing of pictures with dark and light grounds in proper relation to secure effectiveness in the mass, and in so fixing the work that it can be viewed without contortion on the part of the observer. In some reception-rooms pictures and easels are scattered so promiscuously, and at such varying angles, that it is impossible to move around without pulling something over. Such a room causes the lady visitor to feel thoroughly uncomfortable, and is not suitable for its purpose. A last abomination is the placing of small pictures in every available space, which gives the room or window the appearance of a waste-paper basket."

SKYLIGHT CONSTRUCTION AND PORTRAITURE.

Speaking of his photographic experiences, Mr. Thomas Fall, a veteran British worker, gives the following excellent advice.

"Some people in starting photography have considered the studio of one particular man to be all that was desired, and took no account of the skill and ability displayed by the man working in it, or of the fitness or suitability of it in their proposed site. I remember one man who invented a studio which he used in a back-yard. It was suited to the locality. A large firm of photographers pulled down a large and beautiful studio, and got hold of this man to build one according to his pattern and under his

guidance. It was found to be unsuitable in that position, and had to be pulled down. In advising an amateur in building a studio to take portraits of his friends, I should certainly recommend a high front-light.

"Never use high front-light for thin sitters. In taking large heads when there are deep shadows under the eyes, it is desirable to place a newspaper on the table in front of the sitter; it lights up the eyes and helps amazingly. Experience has taught me that it is necessary to have two newspapers—one Radical and one Conservative—as a photographer must not, above all people, allow politics to interfere with business.

"It is a mistake to allow aged persons to assume attitudes which are not natural. They want to sit upright; they do not do it at home. Always get the bend or stoop. I took a profile portrait of Gustave Doré instead of the full-faced portraits which he had previously had. He was very pleased with the result. Rembrandt effects are very flattering and pleasing, and have often led to business.

"Retouching is a curse. Our public men are being handed down to posterity looking more like fools than anything else. All the lines and undulations have been taken out. Photographers should do their own retouching, and they ought to have a knowledge of the anatomy of the face, and while at work should have a print before them. I think the public would be satisfied with a negative if the shadows were simply softened here and there where they are hard. That is legitimate.

"I never talk about formulæ, but leave that to the chemist. I modify the maker's formula to suit the studio. Ammonia has been a very useful agent in the developer in its day. For beautiful, soft negatives, soda is the best; but it takes a little longer to develop. Negatives can be produced with it which will print either in platinum or 'Solio.' Some contend it is impracticable. Better value can be got out of a gray negative; there is more approximation to collodion.

"The theorist is not the best man for the studio. The most successful man is one with artistic feeling and one who turns out pretty pictures which the public like."

A REMEDY FOR LEAKING SKYLIGHTS.

This is one of the worst of the photographer's troubles. Mr. Rezin Clark offers a reliable remedy from his experience:

"I have made a number of experiments upon my own skylight, and believe I have at last found a simple and effective remedy for the evil. Those who have any trouble in this direction will at least find it worth the trouble of giving it a trial.

"Take a thin board, say from a half to three-quarters of an inch thick; cut it into strips a half inch wider than the lower edge of the sash. These strips must be the same length as the sash in the skylight. Run a small groove along each edge of one of these strips; then tack one up under each sash, grooved side up, allowing it to project a quarter of an inch on each

side; this will catch the water that drips from the sash, and carry it down to the lower side of the skylight. At the lower end of each sash, close against the wall or window-frame, make a thin saw-cut a half inch deep into the lower edge of the sash. Take a piece of tin the same width as the strips tacked upon the sash, and about two inches long; bend up the edges slightly, and shove one end into the saw-cut in the sash; this will catch the water which runs down the edges of the strips, and keep it from running down over the side-light. Along the lower ends of these pieces of tin, place a small tin trough to catch the water and carry it to one side of the side-light, where it can be carried off by means of a small pipe through the wall or window-sash.

"This contrivance does not look awkward or bungle-some, as you may suppose, but looks rather neat if properly constructed, and will effectually keep all water from dripping upon the floor of your operating-room."

UNDER THE SKYLIGHT.

Operators generally work too much by rule of thumb. The eye is not trained to see things as an artist should. It is here that art begins; it is here that photography ends.

Your picture may be all that could be asked from a photographic point of view, but art demands more than this. Art demands that each portrait shall have an art value. Now, to secure this, endeavor to show as much of the figure as possible, because the body has much individuality. The *pose, moreover, ought to*

appear unconscious, and there should be appropriate surroundings. Given a commonplace figure, and it is with such most of us deal, for the lucky Danas, Falks, and Saronys are few among the fraternity, and an artist will gracefully pose his model, arrange the accessories tastefully, and thus invest the image with a charm, grace, and beauty. Masses of light and of shade must find contrast and harmony elsewhere. The picture must be so composed as "to hang together," so to speak.

Generally speaking, pleasing photographs, so far as composition is concerned, are not the result of thought, but of accident, few operators having the power to picture mentally before posing the sitter or the group. Take Tennyson's "Bugle Song," and picture each stanza to yourself mentally, invest it with all the beauty possible, and write down what you see. You will find that it can be improved upon greatly.

Mr. Davis, a well-known New York photographer, says: "Chemical excellence is attained by many. Manipulation is not often faulty. The cause of failure is lack of the requisite art-knowledge. On the ground-glass, inverted though the reflection may be, one must instantly be able to grasp the whole effect of lines, of details, of light and shade, in order to make a successful exposure. The lines of grace and beauty so well explained by Hogarth must underlie all meritorious figure composition; the returning curve must be secured or the picture falls flat. The head must be so posed as to secure this curve in its relation to the body. It cannot be denied that the sense of a faultless pose is a birthright."

PHOTOGRAPHING OLD PEOPLE.

There is a certain dignity and attractiveness peculiar to old people which render them eminently satisfactory subjects if properly handled by the photographer. The rigidity which naturally accompanies old age when concerned in any serious undertaking or function must be overcome first of all. This can be easily accomplished either by allowing the subject to fall into an attitude or get into the frame of mind indicative of repose. Repose is natural to most old people. With others it is necessary to animate them by conversation upon subjects in which they can be interested. The photographer should be able to recognize whether animation or repose is most natural to his subject. If they are made to feel thoroughly at ease in the studio, either one or the other condition will soon make itself apparent.

Life is the master-builder of character, and character is a magic word in photographing old people. They are full of character, and a successful portrait of an old man or an old woman is that which perfectly expresses the character—the best side of the character of the subject.

It is true that character as expressed in the faces of old people who have gone through a life of more or less hardship is not always attractive when delineated truthfully. But there is always some good point or other, and the photographer must seek to emphasize the good points and soften those which are unattractive or displeasing.

In securing expression in portraiture, much de-

pends upon the lighting of the face and head. Old people should be placed well under the light, so that they are softly but abundantly illuminated. Many of the poor pictures of such subjects I have seen could have been saved by attention in the lighting. Now and again we have an old man whose face demands vigorous lighting. Seldom may we apply such treatment with women. And, as a general rule, diffusion and softness both in lighting and definition give us the best results. The top light should receive careful attention, that coming from a high side-light being best adapted for portraiture of this class. By screening the top light considerably, and admitting plenty of light from the side, a little above the head of the subject, we may secure soft and transparent shadows, while a judicious use of hand screens will produce pleasing roundness and relief.

Exposure and development of negatives of old people need only a very few words. The exposure should be generous, but over-exposure will give flatness and insipidity, which will ruin the work. Development should be suited not only to the exposure, but also to the character of the subject. In some cases a soft effect will help a likeness; with others snap and brilliancy are desirable, but beware of hardness. Negatives of old people, as far as the face and hands are concerned, should not be allowed to go far enough in development as to cause these parts to appear white in the finished print. Modelling, detail, relief, combined with soft definition, are the prime requisites.

The retouching of such negatives is a matter demanding much care and skill. As a rule, however,

a great deal too much work is put upon negatives of old people by the retoucher. It would be better to slightly subdue the harsh lines and gather the lights together into proper relation, leaving the shadows unaltered, presuming, of course, the lighting to have been satisfactory in the negative.

FIGURE STUDIES.

One of the most useful papers of the year, dealing with figure work, was that presented before the Camera Club in May last by Mr. J. S. Bergheim. We extract a portion which will repay study.

"A very great trouble with the camera is that it has an eye which is fixed, and cannot adjust itself for light and shade on the same picture. When we look at anything highly lighted the pupil closes, and as soon as we turn to the shadows, without our knowing it, it expands, and we see almost as clearly in the shadow as in the high light. The lens won't do this. If you expose for the light you get the shadows wrong, and if you expose for the shadows you get the high lights wrong. Here is a picture, however, which I obtained by acting on the plate in the same way as a model or picture would act on the eye. I photographed my shadows with a long exposure, and my high lights with a very short exposure, which was tantamount to reducing the amount of light coming on the plate from the light portion, and increasing that coming from the shadows. I did it this way: The picture was taken in a room with the light coming in from one window; the sitter was placed, as

you see, facing the light. I had a screen in front of the window, but so that while shading the face there was a good deal of diffused light. I exposed a certain number of seconds with the diffused light only, and got the figure, so to speak, fully modelled on the plate. I then removed the screen, and let in a flash of light for an instant, flooding the face with light. The result is, as you see, that the face is not blocked out, and what is in shadow is sufficiently modelled.

"I would like here to mention that one of the most useful things in learning or serving an apprenticeship to figure studies is to photograph stuffs. I don't know anything that teaches one more. But you must photograph them on the figure, otherwise you have no developing standard to go by. I make it a practice now and again to get a cheap model, and crowd her over with different stuffs, numbering them, photographing them in different lights, and noting the effect. It saves a great many plates in the long run, and prevents surprises. I don't know anything that teaches one more.

"To emphasize lines in shadow, in fold, for instance, I put in strips of brown or arrange colored strips of Liberty silk. I have done this in this picture of Ghazaleh, and also in the big fold of this picture Penserosa.

"To make my draperies cling to show the form of the figure I frequently use spray. For broad surfaces on drapery I often use a wet sponge. After the figure is draped and partly posed I dab over with the sponge, and when the web has soaked in I expose. The parts

dabbed over come out darker, and I am able to get effects that could hardly be got otherwise."

GENRE OR COMPOSITION PICTURES.

The making of "genre" pictures has developed from a pastime into a business. There is an established market for such productions, and there are photographic studios whose main purpose is to supply this demand. While it is true that some of the popular pictures have been the occasional *happy hit* of some photographer, it is also true that the best sellers have come from those who make it their business to make popular pictures and are quick to appreciate their selling qualities. But whether one wants to make such pictures for business or pleasure, no branch of photography offers such magnificent returns for the investment as this. The field is illimitable. The whole range of the sentiments and the passions are at your service. You are only restricted by the want of models and appropriate surroundings. In many cases the appropriate surroundings are *no surroundings*, and the woods (streets) are full of models.—GEORGE B. SPERRY.

How are composition pictures made? The first step is the selection of the subject, and upon this everything depends. Animate or inanimate, and again, indoor or outdoor subjects are at our disposal For a first attempt something simple must be chosen. We may take a bare cottage interior, an old blind man sitting in an armchair of the bygone days and gazing with sightless eyes upon a demijohn of

whiskey (appropriately labelled) on the table by his side, make a successful photograph of the scene, entitle it "Though Lost to Sight, to Memory Dear," and we have a perfect composition picture.

Apart from general rules, however, the chief detail is appropriateness in the selection and arrangement of the surroundings of the chief point of interest in the picture. If old age, old memories, or associations are our *motif*, care must be exercised that the accessories help to convey the restfulness and quiet spirit appropriate to such a subject. Some subjects require sunlight and warmth of feeling for their proper representation, with others abundant shadow and strength of expression are required throughout the details.

Regarding a further requisite for success a word of explanation is necessary. By good photography in this work is not intended clean, strong, brilliant negatives or prints, but rather the use of every means available to secure an appropriate rendering of the subject in hand. This may even be construed to cover what some would call *bad* photography. We seek pictures, not photographs. To this end our instruments and materials must be used with elasticity regardless of the rigid rules governing ordinary photographic work. Thus we see that pictorial effect and the expression of individuality are the prime factors in the making of composition pictures. To secure these every expedient should be utilized, whether it consist of the use of two negatives combined in one print, or handwork upon the negative or print. In a word, having chosen our subject, one with which we are in complete sympathy, we must work upon that

generally false but here truthful principle, that "the end justifies the means."—JOHN A. TENNANT.

PHOTOGRAPHING CHILDREN.

Some capital papers on this subject are given on other pages of MOSAICS, written by American workers, but the following *résumé* of the method employed by Mr. R. Faulkner, of London, will be helpful. Mr. Faulkner's child pictures have acquired an international reputation for their naturalness and pictorial quality. This worker "does not resort to the practice of some photographers, who puzzle, disgust, or frighten their small sitters by what is not inaptly, though very inelegantly, called 'making a fool of himself,' by frantic efforts to say or do something at which a child may burst into a laugh. Mr. Faulkner simply, quietly, and very gently, puts himself, for the time being, on his sitter's own level. According to the child's inclination he romps, looks at pictures, inspects and discusses toys, saddles or harnesses a rickety old toy horse, and thus, imperceptibly, and in a perfectly natural way, becomes the child's playmate. Consequently he obtains natural, and therefore successful, photographs of the child. Thousands and tens of thousands of children have passed in the course of many years through Mr. Faulkner's studio. The walls are covered with pictures of them in infinite variety, but in every one of them you can plainly see that behind the photographer there is hidden the artist who is not satisfied with reproducing clothes and features, but who aims at making his photo-

graphs pictures. This, one fancies, is not an easy matter, considering that there is within nearly every healthy child something of the nature of quicksilver, which causes its possessor to consider that sitting still is of all earthly difficulties the most difficult. Yet, for all this, Mr. Faulkner's favorite young sitters are the young men and maidens who have earned for themselves the name of 'pickles.' When he watches a small man or woman climb up his studio steps with boisterous tread and loud-voiced information about all and sundry things, he feels that success is near. The more so if the child has not been dressed up in its best and stiffest and most uncomfortable clothes, and when no attempt has been made at beautifying the poor sitter by curling his hair or by smoothing and arranging it out of all naturalness. Special arrangements of this kind are a horror in the eyes of the artist photographer, whose one desire is that his sitter should be perfectly at ease. The most difficult of all ages for taking successful photographs of young people, according to Mr. Faulkner, is that between six and seventeen or eighteen years. Boys and girls are all more or less awkward at that period of their lives. But even then, if they are only wise enough to be natural, they need never afterward be ashamed of themselves as they appear in a photograph."

COMPOSITE PHOTOGRAPHY.

As an aid in anthropology and comparisons of physiognomy, composite photography has again been brought before the reading public during the year.

This is a science which must always hold much interest to the photographer. In a recent issue of *McClure's Magazine*, Prof. Bowditch describes the apparatus he has used with success in this work.

"The process of making composite pictures is exceedingly simple, and the necessary apparatus very readily constructed. In the appendix to his *Inquiries into Human Faculty*, Galton has described the very elaborate and perfect form of apparatus which he has used in his studies; but entirely satisfactory results may be obtained with much more simple contrivances.

"The instrument used by the writer is merely an old-fashioned box camera with a hole cut in the top for the reception of the ground-glass plate on which the image is to be reflected for purposes of adjustment. The reflection is effected by a mirror set at an angle of forty-five degrees in the axis of the camera, and pivoted on its upper border so that, after the adjustment of the image, the mirror can be turned against the upper side of the box, and the image allowed to fall on the sensitive plate at the back of the camera. The original negatives are used as components, and are placed in succession in a small wooden frame which is pressed by elliptical springs against a sheet of glass fastened vertically in front of the camera. By means of this arrangement it is possible to place each negative in succession in any desired position in a plane perpendicular to the axis of the camera, and thus to adjust it so that the eyes and the mouth of its optical image shall fall upon the fiducial lines drawn upon the ground-glass plate at the top of the

camera. An Argand gas burner with a condensing lens furnishes the necessary illumination.

PHOTOGRAPHING A DANCE.

In these days of quick plates and abundance of light "on tap," supplied by the electric and flash-lights, photographers are enabled to secure pictorial results which in earlier days were impossible by means of the camera; and since attempts to secure these results increase—results which describe the graceful and beautiful motions of man, woman, and child—it is important that said results shall be the best, no matter what you attempt.

To successfully photograph a dance or a situation in a play it is essential one should see the play and witness the dance. Study it hard, make notes of postures, general positions, etc. When you make your negatives the next day, as is generally the case, you are prepared to do something immediately, and not fatigue your subjects with trying this position or that, not knowing *what* you are after.

Assuming that you *do* know what you are after, we will begin. First. Arrange your light. Use all you possibly can get, have it diffused. The brightest day, at 11 A.M., is an excellent hour for such work.

Second. Use your widest background, that the subjects may at all times and positions be within its limits.

Third. Use a larger lens than necessary for the size required, that you may work as far from the models as possible, and yet keep your size. This

allows you to use the quickest plate and exposure possible without the use of diaphragms. Bear in mind that the subjects in these pictures are not to be *posed*, *i. e.*, this foot moved here, that hand there, etc. Your picture is secured as follows: Place your subjects under the light, about the centre; a little *forward* of centre gives the best modelling for figures in costume. This is only a trial picture to focus upon. With pins, buttons, or any small objects, mark out a square or rectangle for the subjects to stand within; when all is ready, adjust the focus, insert the plate-holders. Now have the models leave the position for a short rest. Instruct them as to the line and about where to stop at a prearranged signal.

See that their faces are *well* powdered, that your shadows will yield transparency even when the heads are down. Your models being sufficiently rested, proceed.

There! They have danced into position; they are exactly as you wish them. Now the signal; wait an instant to allow them to recover balance; *now*—open the shutter—*close*—time, one second, scant.

Give your models plenty of time to rest between the pictures; have them sit.

Another essential is a larger plate than necessary; if you are working 8x10 use 12x15 plates, then, should the models stop at right or left of the mark, they are in excellent position. It is better to catch them then, even though they appear quite at one side of the negative; you have enough space left to get out your print.—CHAS. P. MARSHALL.

PHOTOGRAPHING INTERIORS

Is a branch of work which calls for care and skill. Thomas Aquinas gives the following useful notes from his experience.

For apparatus suited to this class of work we require a camera with square (not conical) bellows, rack-and-pinion focussing movement, lateral and vertical swing, and sliding front. A good-sized spirit-level will be found useful, and the focussing screen should be ruled with perfectly upright and horizontal lines. Any good lens of the wide-angle type will give desirable results. My experience shows that, where they are available, two lenses should be carried. I have generally taken with me, for such work, the No. 3, series C, Suter, of 8-inch focus and 1½ inches diameter, and the Ross Portable Symmetrical No. 8, with 10 inches focus.

From what I hear of the new Bausch & Lomb Zeiss lenses, and the Ross Concentric, it would appear that greater brilliancy and sharper definition may be expected by their use. What I like in interior work, however, is depth, and the Suter lenses give this desirable quality in a measure altogether peculiar to themselves; hence my choice of these instruments. Touching the best plate for interior photography, every worker has his own opinion. As an old wet-plate worker, I prefer a slow, thickly-coated plate, rich in silver, such as the well-known Carbutt B. Latterly, I have used the orthochromatic (sens. 23) plate of this maker, coated with his non-halation mixture, and have been completely successful with it.

By using this plate one is free from fear of halation where windows are in question, and being orthochromatic, they render the color values with acceptable fidelity. A strong tripod is indispensable; it should have sliding legs, and the tips should be provided with corks to prevent slipping on polished floors.

Entering upon one's work, the room should first receive attention, and the best point of view be chosen. Sometimes a slight rearrangement of the furniture will be desirable, especially in the foreground. Care should be exercised to avoid stiffness in arrangement; let the room keep its natural character. If any glazed pictures give back troublesome reflections, tip one corner of each toward the camera by placing a cork behind it. Dark objects should be placed near the light source, and contrariwise, by which dodge the picture gains in effectiveness. The camera should not be placed too high; a little lower than the eye is an advantageous point of view. Where an extended view, leading the eye through several rooms, is required, a large focus lens may be profitably employed.

Focussing, as a matter of course, should be done with the largest aperture, and a smaller diaphragm afterward inserted to get the desired definition. In some pictures I have often secured artistic effect by focussing sharply on the foreground objects, and allowing the distance to grow gradually softer, but care in the selection. As to exposure, everything depends upon the judgment of the photographer after looking on the ground-glass and the amount and depth of shadow shown on the screen. Of course,

the rapidity of the plate requires consideration, and the general aspect of the interior, whether light or dark. The grand rule is, *expose for the shadows.* Development *must* be gradual or tentative.

In printing, if detail and brilliancy are required, use a good gelatino- or collodio-chloride paper. For large pictures, well lighted, where softness is desirable, plain silver paper toned to a sepia or warm black tone will give pleasing results.

ORTHOCHROMATISM.

It is good sometimes to restate elementary principles. The principles of orthochromatic photography are daily attracting more and more attention. The following note upon the relation of plate and screen in this work will be found interesting and practical:

"Most if not all the ordinary plates now available are defective in so far as their translation of tone-renderings, or, as it has been happily termed, values, is concerned. This defect is of a twofold nature. In the first place, the blue and violet colors of a subject, owing to the well-known greater photographic activity of those colors, appear too light in the positive print; while, on the other hand, the colors included between the green and red regions of the spectrum, namely, green, yellow, orange, and red, which are, generally speaking, the brightest to the eye, are too dark in the photograph. Here, then, we have a double error to rectify, and the difficulty is surmounted by orthochromatic photography, which enables us to reproduce natural objects, be they

views, groups, portraits, as well as colored pictures—in fact, anything having a variety of tint, in their true relative values or luminosities; in other words, so that the blue, the green, the yellow, and the orange, and all their various modifications, shall, in our finished prints, look just as light or as dark as they do to the eye in the originals. This is effected by impregnating the sensitive emulsion with a certain dye or dyes which impart sensitiveness to the green and yellow rays, so that objects of the latter colors are shown in the photograph correctly translated as to their visual intensity.

"It is here that the yellow screen steps in. Notwithstanding the sensitiveness of orthochromatic plates to green and yellow, only half the problem has been solved; for the blue and violet rays still retain their photographic activity undiminished, and, even on an orthochromatic plate such colors would still exercise too powerful an influence, so that in our print the blue of the sky or of a lady's dress would continue to appear too light. To reduce the activity of the blue and violet colors to proper limits, and so that they may exert only their proportional influence on the sensitive plate, is the function of a yellow screen. This acts by holding back, as it were, a large part of the blue light, while not interfering with the green-orange colors, and, in fact, harmonizes the relative color values which the negative has to reproduce. This is, we repeat, the sole office of the yellow screen: to depress the too energetic blue light, and at the same time allow the green-yellow light to have full play.

"Now, it obviously follows from this that to employ a yellow screen with ordinary plates, in the hope that better relative color values will result, is to ignore the absence of conditions essential to success; for, in the first place, our ordinary plate has not been sensitized for green and yellow."—J. T. TAYLOR.

DEVELOPERS AND DEVELOPMENT.

Metol (Hauff) continues to win favor, especially for portrait work. It gives very soft detailful negatives, and is remarkably easy to control. Mr. Herbert Bridle supplies the subjoined note for gallery use:

"My method of using metol is to make up in separate solutions.

(A)

Sulphite of Soda (crys.)	8 ounces.
Water	75 "
Dissolve and add Metol	1 ounce.

(B)

Carbonate of Potash	1 ounce.
Water	10 ounces.

"I am using just now, from two sixteen-ounce wide-mouth bottles, solutions that have been in continual use for at least two months. In the first place I made up, in bottle No. 1, 14 oz. A and 2 oz. B; in bottle No. 2, 10 oz A and 6 oz. B. I use four 5 x 7 trays for cabinet work, and to develop pour into trays Nos. 1 and 2 about 7 oz, each from bottle No. 1. This is for flash exposures. Into trays Nos. 3 and 4 I pour about 7 oz. each from bottle No. 2. To develop, take a flash-exposed plate (and of course I keep flash and time exposures separate) and im-

merse in No. 1 tray. At the same time start a time exposure in No. 3 tray; if it comes up too hard, put in No. 2; if too soft, into No. 4 tray, to which I have previously added 10 drops of a 10 per cent. solution of potass. bromide. The flash plate is treated in the same way, going into either No. 3 or 4 as needed. As exposures under a skylight will not vary to a very great extent ordinarily, it is possible to keep three or four plates going at once, and be through with the developing much quicker than with any other developer. After the plates are all developed I pour trays Nos. 3 and 4 into bottle No. 2, adding enough of equal parts of contents from tray 2 and solution B to fill up the bottle. Trays Nos. 1 and 2 are then emptied into bottle No. 1, adding enough of solution A to fill up. Each time I use from the bottles I throw away the sediment that has collected in the bottom, so that there is a percentage of fresh developer present and no dirt, only the clear solution being used. Care must be used in examining plates developed with metol, as exposure of the back of the plate to the developing light will slightly fog the plate much quicker than would the same light with either of the other developers. Always turn the film side to the light, as the partially developed surface of the film will then protect the, as yet, undeveloped inner portion, and the developed part, being always less sensitive, will not be affected. To develop an exceptionally short exposure, take equal parts of A and tepid water. This will give detail where no other developer I have ever tried will; and after the detail is well out immerse in No. 1 or No. 3 tray for strength.

Another formula:

Metol	15 grains.
Sodium Sulphite (crystals)	90 "
Potassium Carbonate	45 "
Water	2 ounces.

"If the proportion of carbonate is lessened still softer images are secured. A good plan is to start the development with the above formula minus the carbonate, and then, when detail is obtained, add the carbonate gradually until the desired density is secured.

To Preserve the Developer.—Solutions of sulphite of soda, if to be used in a pyro developer, should be acid. A pyrogallic developer, containing sulphite of soda of alkaline or neutral reaction, does not keep, quickly becomes brown, and causes fog. To sufficiently acidify a solution of sulphite of soda often requires, not—as taught in the books—only a few drops, but frequently a considerable amount of sulphuric acid. Blue litmus-paper should become distinctly red in the solution. This does not apply to eikonogen or hydroquinone developers, which keep for months without the acid.—PAUL KLIEWER.

Glycin-Hauff is the latest developer introduced. Mr. G. Gennert, the trade-agent for Glycin-Hauff, publishes the subjoined formula for its use:

1. FOR SOFT DEVELOPMENT.

Solution A. (To be warmed slightly.)

Glycin	60 grains.
Carbonate of Potash	230 "
Sulphite of Soda cryst. pure	180 "
Water	3½ ounces.

Solution B.

Carbonate of Potash	150 grains.
Water	3½ ounces.

For use mix one part A with two parts B.

2. FOR HARD DEVELOPMENT.

Glycin	75 grains.
Carbonate of Potash	385 "
Sulphite of Soda cryst. pure	385 "
Water	3½ ounces.

For use to be diluted up to three times its volume.

Glycin is specially suitable for reproductions, for carbon drawings, printing, and portraiture (wet process), for mechanical process, for microphotography, and for developing many plates at one and the same time without giving particular attention to same. In this latter case, for instance, solution 2 is diluted thirty times.

Phanerogene.—This new developer is an organic compound of the aromatic series, embodying the groups NH_2 and OH in the necessary position to have the property of developing. It was discovered by Messrs. Fred. Reverdin and De la Harpe, who made its synthesis in 1892, and who have shown the anticipated developing properties, which are strictly in conformity with its constitution and to the theoretical ideas set forth by the Messrs. Lumière in their very interesting work on the reducers of the aromatic series susceptible of developing the latent photographic image.

Phanerogene presents itself under the form of a white powder of great stability, dissolving readily in the alkaline solutions to give a limpid solution having a very light-yellow color; it yields especially well in

the presence of carbonate of potash; it is, therefore, an alkaline developer working in the manner of hydroquinone and of eikonogen, in opposition to the acid developers which work in the manner of amidol. Its characteristic as a developer is that whilst being sufficiently rapid, its action allows the coming of the details to be well followed; for this reason we prefer it to the very rapid developers which cause the image to appear almost instantaneously, which is pleasing to our modern aspirations, but which often constitutes a danger for the quality of the negative.

Developing Bath Before Exposure.—M. Hodgson, a photographer in Whittlesea, Cape Town, succeeded in shortening exposures by first soaking the plates for five minutes in the usual hydroquinone developer, then, without washing, placing them in the shield. One-fourth second's exposure under the skylight gives fully exposed negatives.

Developing Double-coated Non-halation Plates.—With an abnormal exposure development must be "tentative." There are two methods:

First, by working with solutions of suitable energy to develop the image until sufficient detail be obtained, and then, by the liberal use of a soluble citrate, to develop up density and contrast from the lower films, in which there is a store of density-giving emulsion to which the ordinary worker is quite unaccustomed; or, secondly, to begin with a very dilute and restrained (with bromide) solution, so as to secure in the lower film sufficient density first; afterward, if necessary, acting upon the top film with a more energetic developer, to bring out such detail as may be desired.

CONCENTRATED SOLUTION.

Hydroquinone	30	grains.
Eikonogen	100	"
Rodinal	9	drachms.
Sulphite of Soda	2½	ounces.
Carbonate of Potassium	2½	"
Water to make	20	"

Supposing we have to develop a plate which has to receive, say, three times a normal exposure, generally the best results can be obtained with from three to six times a nominal exposure. Commence development with a weak solution, thus:

DILUTE TENTATIVE DEVELOPER.

Stock Solution	1 part.
Water	15 parts.

Bromide of Potassium (10 per cent. solution).

About two grains of the latter to the ounce of solution.

This will probably begin to produce an image in from two to four minutes. The highest lights should appear first (although they are in the lower films), and density and detail should grow steadily. The important point to keep in mind is that the high light should be developed by the first solution, rather than the detail. If detail comes freely, the developer may be considered too energetic, and the remedy obvious. If detail comes but little, it is of no importance, for being within the topmost film it can be readily acted upon, and drawn out by a more energetic solution, and that without there being time enough for the stronger solution to affect the density-giving sub-film. —S. H. FRY.

Developing Bromide Enlargements.—For developing with eikonogen, my formula is:

Eikonogen	1 ounce.
Sulphite of Soda	4 ounces.
Carbonate of Potash	1 ounce.
Washing Soda	1½ ounces.
Mix with boiling water to make . . .	30 "

I use this full strength, using one quantity five times. The formula for amidol which I prefer is: (1) A saturated solution of sulphite of soda, (2) A 10 per cent. solution of bromide. For use, take 10 ounces of the soda solution, 1½ drachms of bromide solution, and add 60 grains of dry amidol. This I use for six prints running. The mixed solution will keep for about fifteen days in a stoppered-bottle.—A. R. DRESSER.

Amidol as a Developer for Transparencies.—According to M. E. Davie, amidol is well adapted for developing diapositives, to which it gives very agreeable warm tones. The ordinary formula with sulphite of soda gives pure black tones; for brown tones use the following solution:

Amidol	1 part.
Meta-bisulphite of Potash	6 parts.
Water	60 "

For use, take 15 parts of this solution, 30 parts of bromide of ammonium at 10 per cent., 7½ parts of carbonate of potash, and 90 parts of water. After a very short exposure a warm-brown tone is obtained, which in alum is changed into a transparent purple-brown. With a longer exposure the sepia tones are produced. If twice the quantity of water is used, and twice the time of exposure given, tones are formed which go from sepia to a Vandyke brown.

Mr. E. W. Newcomb has ascertained that oxalic acid

added to a solution of amidol, acts as an excellent preservative. He advises the following formula:

Water	32 ounces.
Sulphite Soda (granular)	3 "
Oxalic Acid	20 grains.
When dissolved, add	
Amidol (Hauff)	220 grains.

For developing negatives, mix one ounce of the above with three ounces of water. For lantern slides the proportion should be: amidol one, to five parts water.

For Chloride Plates and Lantern Slides.—Transparencies of the blackest tones are developed with

Water	20 ounces.
Sodium Sulphite cryst. pure	1 ounce.
Amidol	40 grains

Warmer tones are obtained through longer exposure and the liberal addition of bromide, even up to one ounce in the four-ounce developer.

DARK-ROOM WORK.

Stripping Dry-plate Negatives.—Dr. R. E. Liesegang says that a substitute for hydrofluoric acid, formerly employed for this purpose, and whose injurious nature makes working with it anything but a pleasure, has been certainly discovered by him in fluornatrium. In an aqueous solution of any desired concentration of this agent a negative film separates from its support after an immersion of a few minutes' duration. Neither the glass nor the film is affected. To prevent

stretching of the film, the negative should first be coated with a 5 per cent. collodion.

Turpentine as an Accelerator.—Messrs. Wolf & Lenhard have found that essence of turpentine added to the hydroquinone bath acted as a powerful accelerator. They found that a few drops of this essence hastened the reduction and that the clichés are more dense. It seems that the turpentine acts here in the same manner as the hyposulphite in the ferrous-oxalate development; care should therefore be taken to not use too great a quantity. Here is the formula of the inventors:

Water	100 parts.
Carbonate of Soda	8 "
Caustic Soda	0.5 "
Sulphite of Soda	5 "
Hodroquinone	1.2 "

—*Progrès.*

Borax as a Restrainer in Development.—Add to the developer one drop of the following solution:

Water	1000 parts.
Borax	60 "

A few drops are sufficient to completely stop a development already commenced.

Negative Intensification.—The following process is recommended as simple and practical. After thorough washing the negative is placed in a bath:

Sulphate of Copper	12 parts.
Chloride of Ammonium	24 "
Water	480 "

When fully bleached it is again well washed, and developed again up to desired strength with alkali

developer. After a final washing, and clearing with diluted acetic acid, a vigorous, well-printing negative results, with clear shadows.—J. BIRTLES.

An Intensifier for Negatives Reproducing Lines.—

Water	1000 parts.
Iodine	14 "
Iodide of Potassium	27 "

The negative is allowed to remain in this solution until it is entirely yellow. It is thoroughly washed, so that the water running from it is colorless. Afterward the negative is placed in a 1 per cent. solution of Schlippe's salt rendered alkaline by a little caustic soda.—*Paris Photo.*

Preservation of Pyrogallic Acid.—The pyrogallic developing baths change rapidly, and are, of all the reducers in use, those that keep the least well. Generally, the pyrogallic developer is prepared by incorporating sulphite with it; now, if we substitute for this last product meta-bisulphite of potash, the developing bath preserves its qualities better, it does not change so rapidly, and the plates developed by it do not suffer in any way by this substitution. The meta-bisulphite of potash is obtained by supersaturating with sulphurous acid a concentrated solution of carbonate of potash, then precipitating the salt by the addition of alcohol to the liquid.

THE DEVELOPMENT OF GELATINO-CHLORIDE PRINTS.

Much has already been written of this matter in previous volumes of MOSAICS. During the year new

formulæ and methods have been given, and we append here the most useful of these.

Developing Solio Paper.—Print one-tenth to one-twentieth the depth required for the regular toning process. The print will show faint detail in all but high lights. Immerse the dry print directly in the *developer.* Next develop until print shows all the detail and about half the strength required in a finished print; this will take ten to thirty minutes.

Solution No. 1.

Hydroquinone	½ ounce (avd.).
Sulphite of Soda	½ " "
Potassium Bromide	1 " "
Ammonium Bromide	2 ounces "
Water	64 " (½ gal.).

Solution No. 2.

Caustic Soda	¼ ounce (avd.).
Water	16 ounces (1 pint.)

Solution No. 3.

Tannic Acid	8 grains.
Water	1 ounce.

To develop 10 or 12 prints take

No. 1	5 ounces.
No. 2	1 ounce.
No. 3	1 drachm.

The print will, when first put in the developer, fade away to a pale yellow; then will slowly develop up to a point showing about as much detail and about one-half the strength as a finished print, remaining yellow, however. If the developer works too fast dilute with water. As fast as developed throw prints into a solution of *acetic acid*, 3 drachms per gallon of water.

Wash five minutes in frequent changes of running

water; then *tone* in combined bath as usual. *No extra fixing.*

Hints.—A little extra care should be exercised in putting Solio intended for development into the printing-frames and taking it therefrom. It should be done by subdued daylight.

If the prints continue to develop in the toning bath, too much alkali (solution No. 2) has been used in the developer. The prints will appear to strengthen by reason of the change of color in toning, but they ought not to increase in detail.

The exact point to which the printing is carried does not seem to make very much difference; so long as the print is underprinted it can be brought up by the developer.

Development is best done by ordinary lamplight without a yellow shade.

Prints made by the above process are rather more brilliant than those fully printed out.

More sulphite in No. 1 tends to make softer prints.

Solution No. 3 requires a drop of carbolic acid if it is desired to keep indefinitely. The tannic acid is used only to harden the gelatine.

Mr. W. T. Wilkinson advises the following as a certain and reliable method:

The prints should have at *least* one-tenth of the normal exposure to light; but between this and full exposure is of no consequence whatever.

When all the prints are ready, they are placed one at a time in a solution of

Potassium Bromide	1 ounce.
Water	10 ounces.

here they are kept moving for ten minutes, afterward being washed in five or six changes of clean water, to get rid of free bromide.

The next step will be to develop, which is done by immersion in a developer compounded as follows:

No. 1 Solution.

Hydroquinone	½ ounce.
Sulphurous Acid	¼ "
Sodium Sulphite	¼ "
Potassium Bromide	60 grains.
Water up to	100 ounces.

No. 2 Solution.

Caustic Soda	¼ ounce.
Sodium Sulphite	½ "
Water up to	100 ounces.

No. 3 Solution.

Ammonium Bromide	1 ounce.
" Carbonate	1 "
Water up to	100 ounces.

The carbonate of ammonia must be free from the powdery bicarbonate, which, if present, should be wiped off.

To use the above, make up a developing mixture composed of equal parts of each of the three. It is always wise to use plenty of solution; as a rule, I always use six ounces of each, a mixture that will develop at least five sheets of paper.

The development is not a long operation, and must be stopped as soon as the finer details are visible, but no effort must be made to obtain vigor—that comes later; now, we must only get detail, and quite ignore the weak look of the prints. When the development is complete each print is placed in running water and well washed. When this washing is complete the

prints are ready for toning. This is done in a bath composed of 3 ounces of a sulpho-cyanide of ammonium solution (1 ounce in 15 ounces of water); 2 drachms of a gold solution, 15 grains in 15 ounces of water), and water 16 ounces.

This quantity of gold will tone one sheet of paper; so, if more or less than the sheet be in the batch, the quantity given above must be increased or diminished.

The prints tone very rapidly in this bath, and are removed when the effect required is seen by transmitted light. The fixing bath does not alter the tone of the prints.

After toning, the prints receive three or four changes of water, and are then fixed in a solution of

Hyposulphite of Soda	4 ounces.
Water	20 "

An immersion with constant movement for fifteen minutes is sufficient for perfect fixation. A thorough washing, then followed by immersion in a solution of alum for five minutes and another washing, and the prints are ready for laying out to dry.

Mr. W. J. Wilson, manager of one of the largest firms manufacturing gelatino-chloride paper in England, gives the following method:

He advises that, to secure pure high lights, all white light be excluded from the paper previous to its insertion in the printing-frame, and abundance of yellow light be used in its manipulation before exposure.

The amount of exposure to be given to the paper under the negative is left to the discretion of the

printer so long as at least a faint impression of the image is secured. With some negatives only a few seconds will be necessary; with others, an exposure of five or ten minutes will be required. The fainter the image, the longer the development.

A visible image having been secured, the print is immersed for from two minutes to eight minutes in a 10 per cent. solution of potassium bromide. If the print is left too long in this solution, or if the solution is too strong, the gelatine film will soften and after-manipulation will be difficult. In this bath the whole of the silver is converted into bromide. Care should be exercised to avoid the formation of bubbles upon the surface of the paper. To avoid these, place the print face downward in the bath until completely immersed, then drain it once or twice over the edge of the dish, afterward re-immersing it in the solution. The print is afterward washed for a minute or two in water.

The developer recommended is:

Hydroquinone	3 grains.
Sulphite of Soda	4½ "
Bromide of Potassium	6½ "
Carbonate of Ammonium	6 "
Caustic Soda	1½ "

per ounce of developer. All these except one are indispensable, and that one is the carbonate of ammonium.

As in the operation of bromizing, so in development, the formation of air-bubbles should be avoided. Another point is that the prints should be well covered with the solution during the development, and the air should not be allowed to get at the paper.

As soon as the print is judged to be sufficiently developed it should be stopped instantly, which can be done most effectually by plunging it into a weak solution of citric acid. After washing for a quarter of an hour it will be ready for toning, for which the sulphocyanide bath is recommended.

By this method soft prints may be secured from hard or dense negatives, or vigorous prints from thin and flat negatives. We shall be pleased to hear of the results obtained by our readers in using this method with American gelatine papers.

MANIPULATION OF PRINT-OUT PAPERS.

Photogenic Matt Print-out-Paper, obtainable with either rough or smooth surface, as desired, is a paper which should be hailed with delight by all artistic photographers, amateur and professional.

As received photogenic matt paper is colorless, very sensitive, and without any curling propensities. It is apparently a collodion (or celloidin) paper, and when finally washed may be dried between blotters and handled similarly to the familiar albumen paper. Its manipulation is simplicity itself; in fact, it is the easiest paper to handle of any I have yet met with. The prints should not be printed much darker than is desired in the finished picture. When printed give them four washings, passing the prints from one dish to another, and allowing twenty minutes for the washing. For toning, make up *stock solution* as follows:

No. 1. Dissolve 15 grains pure chloride of gold in 15 ounces of water.

No. 2. Dissolve 1 ounce sulphocyanate of potassium in 7 ounces of water.

To tone, take 25 ounces of water, No. 1, one ounce, No. 2, one ounce (add No. 1 to No. 2).

Before use, neutralize the bath by adding a few drops of a saturated solution of chalk or aqua ammonia. Tone to the desired color, which should not occupy less than six minutes, and allow one ounce of stock solution No. 1 to every fifteen cabinet prints. In a bath of the above proportions, by the addition of gold solution as recommended, one hundred cabinets can be toned.

As is usual with potassium baths, the tones incline to purple brown. If a warmer tone, sepia or red, is desired, the substitution of sulphocyanide of ammonium for the sulphocyanate of potassium will effect this. Mr. John A. Tennant says:

Those who prefer what is known as the *acetate* tone can use the following bath:

Water	25 ounces.
Saturated Solution Acetate of Soda . . .	¼ ounce.
Chloride of Gold	1 grain.

Neutralize with chalk if necessary. The prints from this bath dry bluer than they appear when wet.

From the toning bath place the prints into a salt solution of about a tablespoonful of salt to a gallon of water. From this solution put the prints into the fixing bath, composed of hypo soda, 1 ounce; water, 25 ounces. Fix four minutes.

Aristo-platino is a new matt surface paper introduced by the American Aristo Company, and intended for use where platinum and carbon effects are desired.

This paper is not only very suitable for soft portrait work in both small and large sizes, but will also be found useful for general outdoor work. The prints should be printed rather deeper than is required for the regular American Aristo paper. When printed, give the prints five generous washings, rocking the tray to avoid handling the prints with the fingers. This paper readily lays flat, and there is no tendency to curl, neither is there any need for anti-curling treatment.

The range of tones obtainable is very wide—from a light sepia to a rich platinum black. For sepia tones, delicate and beautifully warm, I used a plain gold and water bath, made slightly alkaline by the addition of saturated solution of borax.

For deep brown or warm black tones the following bath gives good results:

Water	60 ounces.
Sulphocyanide of Ammonium	1½ "
Acetate of Soda	1½ "
Powdered Alum	1 ounce.
Chloride of Ammonium	20 grains.
Chloride of Gold	10 "

Before adding the gold to the bath it should be neutralized with precipitated chalk. This bath works better if made up several hours before toning.

To secure exceptionally rich black tones the prints should be first toned to a medium depth in the plain gold bath, and then immersed in the sulphocyanide bath until the shadow shows black.

Fix the prints for five minutes only in a bath composed of one ounce hypo crystals (Walpole "New Process" hypo is preferable) in 20 ounces of water.

G. B. Paper is a collodio-chloride paper recently placed upon the market by Gleim Brothers, Ottawa, Ill. It is manipulated as follows: Print a little darker than is desired in the finished picture. Lay the prints one by one in warm water at 100° F., overlapping each other, and press them flat with the hand (or immerse for a few minutes in a bath of equal parts of alcohol and water). Then wash in several changes of warm water to clear away the free silver. Make up a *stock gold solution* containing 15 grains of gold chloride to each 5 ounces of water. To tone the prints use a bath containing ½ ounce of stock solution to 1 gallon of warm water. Watch the prints carefully, as they tone in this bath very rapidly. When toned place in a weak salt solution to stop the toning action. Fix for fifteen minutes in a solution of 5 ounces of hypo soda in 1 gallon of water. Wash in eight or ten changes of water; mount and burnish the same as albumen prints. We found that the combined bath given for Ilio paper, at page 318 of the 1893 volume of *Wilson's Photographic Magazine*, gives excellent results with this paper.

B. P. Paper in a nutshell: B. P. Aristotype paper is a gelatine paper, and should therefore be kept in a dry place. The negatives, printing pads, etc., should also be perfectly dry. B. P. prints exactly as albumen paper prints, and the progress of printing is judged as in albumen printing. Prints ready to tone should be first well washed in several changes of water, until the last water is perfectly clear from free silver. If the prints are kept face down in the baths they will float, as albumen prints do, and be more

easily manipulated. Any good albumen-paper toning bath may be used, either neutral or slightly alkaline. The temperature of the bath should be cool, and the prints should take six to eight minutes to tone, being kept in motion, face down, by rocking the dish. Stop the toning just before the prints appear as desired in the finished print. Fix in cold water, 1 gallon; hypo, 3 ounces; B. P. hardener, ½ ounce. The above quantity will fix one hundred and fifty cabinets. Fixing should take fifteen minutes. Wash the prints thoroughly, mount, and when quite dry burnish as usual, being careful that the machine is not too hot.

Toning Lithium Paper.—The following modification for toning lithium prints in separate toning and fixing baths is said to produce fine results: Wash the prints through one water, and transfer to a bath of

Water	64 ounces.
Powdered Alum	4 "

Then wash the prints in three changes of water, and tone in any good albumen bath. An excellent bath recommended is as follows: Take

Hot Water	16 ounces.
Bicarb. Soda	2 "
Acetate of Soda	1 ounce.

To make the toning bath, take

Water	64 ounces.
Soda Solution as above	1 ounce.
Gold Chloride	1 grain.

Bath should turn red litmus to a blue. Tone five or ten minutes. Prints before toning will assume a brick-red tint, but upon immersion in the toning bath

will clear up from a cherry to a blue tint, according to time given. For a warm tone, take the prints out when they are a rich cherry color; for brown, purple, or blue tones allow the prints to tone accordingly, as they darken a little in fixing.

Toning Nepera Paper.— The most brilliant prints and the purest whites were secured by using the simple separate bath advised by the manufacturers, viz., add 30 ounces of water to 1½ ounces of a stock gold solution containing 15 grains of pure gold chloride to 16 ounces of water, made neutral or *slightly alkaline* with a sufficient quantity of saturated solution of borax. Then add to the bath 1 drachm acetate of soda and 25 grains of borax. This bath should be made up one hour before using. This gives a variety of tones, from brown to purple-black; the favorite albumen paper tone is easily obtainable. An acid bath produces uneven tones. Toning with the above bath should take about six or eight minutes; by strengthening or diluting the bath toning can be controlled at will. A peculiarity never before observed in our experience with print-out papers, but evident during the toning of Nepera paper, is the "poor" appearance of the print during toning. At first this caused us some uneasiness; in the fixing bath, however, the prints assumed wonderful brilliancy and clearness in the lights, with pleasing richness in the shadows. The fixing-bath should be simply composed of 1 part of hypo in 10 parts of water.

After fixing and toning in either the separate or combined baths, the prints should be washed one

hour in running water, or in ten changes of water, each change of five minutes' duration.

A New Toning Bath for Prints on Aristotype Paper. By M. J. Goedicke.—

Distilled Water	1000 grammes.
Hyposulphite of Soda	200 "
Boric Acid	30 "
Nitrate of Lead, at saturation	15 "
Sulphocyanide of Ammonium	20 "
Chloride of Gold, at 1 to 200	60 "

Lithium Matt-surface Paper is the latest product of the Kirkland's Lithium Paper Co., of Denver, Col.: an account of whose brilliant surface-paper appeared in *Wilson's Photographic Magazine* for September, 1894. We have given this paper careful trial, manipulating it in precisely the same way as the brilliant surface-paper, and have secured very satisfactory results. The toning and fixing-bath used was that advised by the manufacturers of the paper for the obtaining of brown tones, viz.:

Water	32 ounces.
Hypo Soda	8 "
Sulphocyanide of Ammoninm	1 ounce.
Nitrate of Lead	½ "

Dissolve and add

Gold Chloride	7¼ grains.

Let stand for twenty-four hours, and then add

Alum	¼ ounce.

This bath proves very economical in practice, giving deep tones with pure white; by diluting with three times its bulk of water we secured fine sepia tones, very appropriate to light interior effects. The

pictures should be printed somewhat deeper than albumen prints, and well washed before being placed in the toning-fixing bath. It is important to use this bath in a porcelain dish. This paper is to be especially recommended for all work where breadth and softness is desirable, as in large portraiture and outdoor views. The matt surface renders atmospheric effect in a remarkable way, giving attractive gradation of half-tone, and a velvety richness to the shadows. Brown-black tones can be easily secured by using Burton's combined bath, as given in MOSAICS, 1894.

The Combined Bath.—The main drawback connected with the use of the combined bath is sulphuration. If the combined bath is not made up with a proper understanding of the chemical laws we will have a great or almost total decomposition of the hyposulphite of soda through alum or free acid—alum added as such to the combined bath and free citric or tartaric acid, with free nitrate of silver in the paper.

If the paper contains too much free acid, decomposition of the hyposulphite of soda of the combined bath takes place *in the film itself*, free sulphur is deposited through this decomposition, and where we should get pure whites we get muddy yellows.

Do not use the bath over and over again. There is only a certain quantity of hypo in it. Each sheet of paper you tone removes a certain part of it; the same with gold. You cannot keep on taking out the component parts of the combined bath and putting into it all the soluble salts of the collodion paper with

impunity. If you desire to use the bath repeatedly mix one part fresh bath with one part of old.

Do not use your combined bath too warm or too cold; try to keep it at about 60° F. If it is too warm the action is too energetic and the prints are ruined; if too cold the film becomes brittle. If you work with care *and think a little* while working, you will find it a pleasure to use the combined bath with collodion paper. The results obtained will be as permanent as the best results obtained upon gelatine or albumen paper.—H. C. STIEFEL, PH. D.

Combined Bath for Nepera Paper.—The manufacturers of Nepera paper strongly urge photographers, on scientific grounds, to discard all combined toning and fixing baths containing alum or lead, which produce unstable chemical compounds in the film. The combined bath they recommend is as follows:

Hypo Soda	8 ounces.
Sodium Acetate	4 drachms.
Ammonium Sulphocyanide	6 "
Water	30 ounces.

After everything is dissolved, add drop by drop the following solution, while stirring:

Gold Chloride	15 grains.
Water	2 ounces.

This bath tones more quickly when warmed, and gives very pleasing results.

For purple or black tones make this bath slightly acid by adding a few drops of acetic acid. If it tones too quickly make it less acid by adding bicarbonate of soda. Never tone in less than 8 minutes. The bi-

carbonate, as directed, gives complete control over the toning.

A good way to use this combined bath is to place the prints first in a solution of hypo soda (1 ounce in 16 ounces of water). Let them fix a few minutes until they turn yellow, then place in the combined bath. This insures perfect fixation of the prints.

To obtain clearness and preserve absolute purity in the whites of the prints, immerse them after toning in a sufficient quantity of water made decidedly acid to the taste by the addition of acetic acid.

MANIPULATION OF PRINT-OUT PAPERS.

Toning Gelatino-Chloride Paper in Cold Weather.—In the first place, the paper should be kept in a dry spot free from moisture. Where the printing-room is built upon the bare ground it is a good plan to preserve it in a tin box. Albumen paper will not yield good results if damp, and neither will Aristotype. Again, if the former is very cold it will not print readily, nor will the other—the results will be harsh, flat, and devoid of delicacy.

In heating water, care must be taken to use no vessel containing rust or exposed iron. It is, of course, absolutely necessary that the preliminary washing shall be very thorough and the free silver entirely removed from the new paper.

In the matter of baths, the water in all localities contains more or less alkali—for no such thing as absolutely pure water exists in the natural state—and, therefore, added chemicals do not readily dis-

solve without the aid of heat. With this indisputable fact in view, the need of old and well-ripened baths becomes self-evident, or uneven and spotty toning, due to the imperfect union of chemicals, will be the result. Forty-eight hours is not too long a time to allow a bath to stand before use; and it should be employed until discoloration sets in, when a part should be discarded and enough new added to make up the original quantity. A very simple and satisfactory bath is made up as follows: Dissolve, say, two grains of gold in four or five ounces of water, then add saturated solution of sal soda, drop by drop, until the red litmus-paper shows a very faint trace of blue at the end of three minutes. Then add water to make up a 64-ounce bath, and allow same to stand from twenty-four to forty-eight hours. Before toning, figure up the number of prints in hand, and if the two grains of gold already in the bath be not sufficient to tone them, place the needed amount of gold dissolved in a little water in a graduate, neutralize with sal soda, and add to bath as required. Where the vignette tones before the regular picture, with a cloudy halo of rainbow hues, the alkali is in excess, consequently bring the bath to the proper stage of being barely neutral by the addition, drop by drop, of a saturated solution or citric acid. General cloudiness may also result from the use of too strong a fixing bath. For ordinary use the strength should be about three ounces of hypo crystals to one gallon of water. This bath may be strengthened in cold weather in many cases to advantage, although where prints are light, toning slight and delicate, it

is obvious that the fixing bath should be proportionately weak. In summer weather the toning bath should be barely alkaline; in winter it may be used somewhat stronger, but never in any case as alkaline as an albumen bath.

For the same reasons advanced for the compounding of the toning bath, the hypo will not as readily wash out in winter as it does in summer. If slightly warm water be used it will quickly dissolve out of the print; if the water is cold, wash longer and more carefully. In conclusion, a faithful adherence to these general suggestions will certainly result to the advantage of the photographer, as well as rob the manipulation of Aristotype paper of half its troubles.

PRINTING PARTICULARS.

Plain Paper Printing.—Mr. C. F. Robinson gives the subjoined method and formula for the manipulation of plain paper especially adapted for portraiture.

To produce sepia tones he had experimented in all sorts of ways. Hyposulphite and a little gold gave something of the kind, but the nearest approach to sepia he had obtained by using the following bath:

Chloride of Palladium Solution . . .	20 drops.
Citric Acid	60 grains.
Water	10 ounces.

Toning was completed in about five minutes, but the prints did not tone much more when left for a quarter of an hour. More palladium was added from time to time in the same manner as gold. Vigorous prints were required to start with. Tone to a purple color,

wash, and treat with a carbonate of soda bath and fix. Colder tones were obtained by dipping the prints for thirty seconds in an ordinary platinum bath, which lowered the tone. Before toning with either palladium or platinum it was advisable to place the prints for thirty seconds in a salt-and-water bath, and then wash for about five minutes. For mounting he used white dextrin mixed as it was required.

Black Tones on Blue Paper.—To change the blue into black images they should be placed in water acidulated by nitric acid, then passed in a bath water 100 parts, carbonate of soda 5 parts. The image turns to an orange color. It is immersed in a bath composed of: Water, 100 parts; gallic acid, 5 parts; and, finally, it is washed in water acidulated by hydrochloric acid.—*Revue de Chemie Industrielle.*

Autoplatino Toning Bath.—Dampen the silver prints, then place in the gold bath:

Water	2880 parts.
Borax	45 "
Chloride of Gold	1 part.

Let them remain until they have turned to a warm brown tone, then wash in clear water one minute, after which place in platinum bath

Water	2880 parts.
Citric Acid	30 "
Chloro-platinite of Potassium	12 "
Common Salt	48 "

Until they turn to a purple-black tone.

Eastman's platino-bromide paper is another candidate for the advocates of matt surface. Some specimen prints before us are of charming quality—rich and soft and full of detail. The new paper is an

argentic bromide paper and is handled just the same as the Eastman Co.'s standard bromide paper, and the manipulation is extremely easy. It is offered for all sorts of printing. Your dealer will supply you with a circular giving the formula and prices.

Sensitized Postal Cards.—Prepare the following solutions:

1.—Ferric Ammonium Oxalate	1 part.
Ferric Citrate	1 "
Water	15 parts.
2.—Potassium Ferricyanide (red) . . .	1 part.
Water	10 parts.

The paper is dampened by means of a cotton wad soaked in the solution No. 1. This operation should be performed in diffused light. Dry rapidly and expose under the negative (one to three minutes in the sun, five to ten minutes in the shade) until the image shows itself feebly. Develop by means of a Badger blender steeped in the solution No. 2. Wash in water and dry between sheets of bibulous paper. Over-exposed copies may be reduced by adding a few drops of ammonia to the washing water. Weak copies, on the contrary, may be strengthened by using hydrochloric acid in place of the ammonia.—*Praktischer Rathgeber.*

PRINTING LANDSCAPES.

In a landscape picture there is much chance for improvement by the printer. Whether a 'scape or architectural picture should be printed entire or vignetted, is easily decided. If the picture represents an entirety enclosed within its limits, then no objec-

tion exists to vignetting it, and such effects are very charming. Shrubs, grass, air, sections of water-surface near the edges may be shaded off without hesitation, thus lifting the main features into prominence all the more.

But it would bring utter failure to attempt to shade off massive objects—a rock, the wall of a building, a bridge, the foundation of a house, the arch of a gate, etc. Such objects are best determined by the edge of the print, than left in the fog and haze of a vignette. Only what in its nature approaches or suggests the evanescent—motion, atmosphere, haze—lends itself to vignetting with grace. It can hardly be necessary to interpret this maxim by examples.

Favoring certain portions in the print by prolonged exposure, as well as the holding back of others by protection from the light, plays an important part in the printing of a landscape. Green foliage is so often represented in the negative as almost clear glass, that it often resembles an inky patch in the print long before the intense distance is more than barely outlined. In such cases the foliage should be protected, and the intense portions brought up by protracted exposure. It is self-understood that these distant parts must not be over-printed so as to appear too near. Should a faulty negative give such an effect of itself, it would become necessary to over-print the foreground and retard the distance to produce the necessary atmospheric effect. In marine views the water often prints so dark as to look more like earth than water; the distant ships come out as strong as those near by, the beach too white. Here, again, by over-

and under-printing must the necessary balance be attained.

Only in rare cases does the sky in landscape or architectural pictures take as one would wish. Too much sky is easily remedied by cutting in the print, but too little or too intense a sky requires the printing-in of clouds. Many photographers, when anxious to produce a picturesque sky-effect, take two negatives at the outset: one normal landscape exposure, the second an under-exposure for the sky. This facilitates matters greatly. The printing-in of the clouds is reduced to a simple mechanical labor, over- or under-printing alone having to be avoided. But these double exposures answer the purpose only when, by good luck, the position of the clouds is such as not to interfere with the composition of the picture.

PLATINOTYPE PRINTING AND TONING.

This beautiful process wins little favor in our country as compared with its popularity in Europe. At the 1894 exhibition of the Royal Photographic Society almost as many platinotypes were shown as prints by all other processes combined. In the October and November issues of *Wilson's Photographic Magazine* will be found two papers by practical workers of platinotypy which will repay perusal.

Warm-toned Platinum Prints.—Cold developed platinum prints immersed in a bath of uranium nitrate assume a brownish-violet tint, but do not go beyond that color, and never change to red, even by a prolonged action of the bath.

Provided always that the development of the print

has been by the cold bath process, a reddish color is obtainable by the following process:

Add to 34½ ounces of the developer from 3½ to 7 ounces of a 4 per cent. solution of mercuric chloride. Less mercury produces browns of lesser intensity, while with more this intensity of color increases.

If after developing, fixing, and washing, the print is immersed in the uranium bath:

Water	34½ ounces.
Uranium Nitrate	2½ drachms.
Ferricyanate of Potassium	1½ "
Glacial Acetic Acid	2 ounces.

The tone changes gradually to a fine sepia color, becomes reddish by a continued action, and finally turns to a positive red.

When the desired tone is attained, wash for ten minutes in pure water, acidified with glacial acetic acid, and finally rinse off. Prolonged washing will neither injure nor reduce the tone.

Washing the prints in a dilute solution of ferric chloride turns them green. In order to eliminate from the print all excess of iron, wash in water acidulated with hydrochloric acid or acetic acid.

Continual washing of a green print in water tends to reduce its color intensity, which can, however, be restored by again treating it with a solution of ferric chloride.—*Photographische Correspondenz.*

Platinum Toning.—The following new toning bath for silver prints is recommended in *Die Photographie:*

Water	500 cc.
Common Salt	35 grammes.
Tartaric Acid	8 "
Sulphate of Soda	6 "
Chloro-platinite of Potassium (12 per cent sol.)	8 cc.

This bath gives magnificent engraving black tones, and the prints toned with it are very like platinotypes with regard to color. Another advantage is that it keeps for a very long time, and that it may be used repeatedly until exhausted.

CARBON PRINTING.

There are signs of a revival of interest in this old-time and valuable process. At the conventions the carbon prints shown received much appreciation. Mr. J. M. Appleton, of Dayton, Ohio, has produced charming portraits by this process, and is working it practically in his daily practice.

Some interesting particulars relating to the new carbon-velvet paper of Mons. Artigue are given by Mons. Gravier on another page. This paper is not yet obtainable in America, but finds considerable favor in Europe. A detailed account of its manipulation may also be found in *Wilson's Photographic Magazine* for April, 1894.

During the year the Autotype Company (Messrs. E. & H. T. Anthony & Co., New York, Agents) have placed in the market a new "Daylight" carbon tissue which may be dried, after sensitizing, in white light. The advantages of this modification are as follows:

1. That the tissue can be dried rapidly, and, owing to this, is freely soluble.

2. That during drying it is protected from fumes and dust, and in addition can be dried in a purer atmosphere than that of the dark-room or cupboard.

3. That the professional photographer or amateur

requiring occasional prints can prepare the tissue and make a print in a comparatively short time without using his dark-room.

4. That it has the advantage, like ordinary tissue, over the ready sensitized, that it can be sensitized to meet the requirements of different kinds of negatives by using a strong bath of bichromate for strong vigorous negatives and a less concentrated bath for weak ones.

A brand of carbon paper of American manufacture has also been introduced during the past few months. For those desiring matt surface prints giving broad effects, and permitting of considerable after-work upon the prints, the carbon process offers many advantages. The article on "Excelsior Photographs," in *Wilson's Photographic Magazine*, April, 1894, shows a capital way of utilizing this process in picture-making.

THE PERMANENCY OF SILVER PRINTS.

After an exhaustive review of the causes of fading in silver prints, given in *Wilson's Photographic Magazine*, January, 1894, Dr. J. H. Janeway says:

We believe from what has been mentioned before, the principal factors to be: *imperfect fixation*, *imperfect washing*, and *moisture*; that the presence of but one of these will not in our opinion cause fading, but that it requires the presence of moisture with either or both of the other two to commence and allow other contributory factors to carry on the work. For example, the presence of sulphuretted hydrogen

in the air has justly been blamed for its destructive action upon silver and silver prints, but careful experiments have abundantly proven that dry sulphuretted hydrogen has no action whatever upon the metal or the metallic image. There is abundance of evidence that imperfectly fixed prints, and imperfectly washed ones *kept* dry, have remained intact for long periods, some of which finally, from frequent exhibition, absorbed moisture and began to fade.

All the other agents which experimenters have enumerated as causes of fading may be classed under the head of *contributory* causes.. To which I would add: undue exposure to white light, carelessness, and impure paper.

The London Photographic Society communicates important researches by Grundy and Haddon concerning the silver and hyposulphite of soda left in the film after washing. Their first effort was to ascertain how long paper prints must be washed to entirely remove the fixing salt and the hyposulphite of silver; in the second place, to discover the cause of fading.

It resulted that after five minutes' washing 97 per cent. of all the sulphur was removed; after ten minutes, 98 per cent; longer washing fails to remove the remaining 2 per cent. In the fixing bath 88 per cent. of all the hyposulphite of silver in the picture is removed; five minutes' washing removes 4 per cent. more, or 92 per cent.; after ten minutes' washing 95 per cent. is removed; longer washing will not remove the rest. Consequently it is useless to wash an albumen print longer than ten minutes. The

durability or permanence of prints depends more on the thorough fixing and less on the washing. The best means to attain to this is, no doubt, the use of two fixing baths, but with the precaution of five minutes' washing after the first bath.

[We would, nevertheless, advise not to wash the pictures too short a time. Should the pictures become lodged and adhere to each other the washing process would be very much retarded.—EDITOR.]

PRACTICAL POINTS FROM THE WORK-ROOMS.

Retouching Fluid.—1. Dissolve resin in spirits of turpentine until it has the consistency of cream.

2. Dissolve balsam of fir in spirits of turpentine until of the same consistency as No. 1.

To make the fluid, mix equal parts of No. 1 and No. 2, adding spirits of turpentine to dilute if required.

Negative Varnish.

Button Lac	8 ounces.
Sandarac	2 "
Wood Alcohol	2 quarts.

Button lac is shellac in sticks.

Silver Bath for Albumen Paper.—Use a simple nitrate of silver and distilled water solution, 60° to 65° strong in winter and 50° to 55° in summer, adding from time to time a few drops of a saturated solution of carbonate of soda.

Float the paper on this bath for from two to four minutes.

Before printing, fume the paper thirty minutes.

Toning Baths.—a. One grain of chloride of gold

to each ten ounces of water; neutralize with bicarbonate of soda adding a very little carbonate of soda to prevent the bicarbonate from attacking the albumen.

b.	Acetate of Soda	30 grains.
	Chloride of Gold	1 grain.
	Water	10 ounces.

Fixing Bath.—One ounce of hypo-soda to each 4 ounces of water.

Manipulation of Gelatino- and Collodio-Chloride Papers.—Adhere closely to the formulæ and manipulation advised with the several papers to be used.

Sensitizing Solution for Carbon Tissue.

Bichromate of Potash	20 to 30 grains.
Water	1 ounce.
Liq. Ammonia	20 minims.

For Preparation of Negatives before Printing.—Use Gihon's opaque or Strauss marl, thinned with water to the desired consistency; apply with a small sponge or the tip of the finger as required.

Mountant for Commercial Work to Obviate Cockling.

Nelson's No. 1 Photographic Gelatine	4 ounces.
Water	16 "
Glycerine	1 ounce.
Wood Alcohol	5 ounces.

Dissolve the gelatine in the water by heat, add the glycerine, and gradually stir in the alcohol.

A Good Encaustic Paste.—Dissolve shredded white beeswax in benzole until of creamy consistency; lightly rub over the surface of the prints just before

burnishing, covering the print completely, and using a piece of clean chamois.

An Impervious Coating for Wood Baths.

Gutta-percha	50 parts.
Paraffine	50 "

Prepare the mixture over a slow fire and apply it with the aid of a metallic brush. After application pass a hot iron to obtain the polish. This coating renders wooden tanks absolutely water-proof, and is not acted on by alkalies or acids.—*La Photographie Francaise.*

A Permanent Fixing Bath.

Water	350 parts.
Bisulphite of Soda	10 "
Hyposulphite of Soda	40 "
Chrome Alum	2 "
Citric Acid	15 "

This fixing bath may be kept almost indefinitely, and yields negatives that are very pure and brilliant. —*British Journal.*

A SIMPLE ENLARGING APPARATUS FOR AMATEURS.

In the *Düsseldorf Amateur Photographer* Mr. E. Gruby suggests an easy way to obtain enlargements from small negatives.

Make or have made out of common ½-inch pine boards three boxes—No. 1, of 23 inches length and 7x9 inches inside; No. 2, of eight inches length, and fitting into No. 1; and No. 3, 16 inches long, and fitting over No. 1.

No. 1 is open on one end, while at the other a sort

of printing frame is fastened—7x9 in.—the joints pasted over with paper to make light-tight. No. 2 is also open on one end, but closed on the other by a board with aperture in the centre for the lens. The open end is pushed into No. 1, fitting closely. No. 3 is also closed on one end, with a 4x5 inches opening to receive the negative, where it is fastened by two turnable brads.

This constitutes the whole apparatus. It should be painted black inside. The box with objective attached was made in that form to enable it to slide parallel to the negative when pushed into No. 1, but it may be made, if desired, with one side open. The outside is left unpainted to facilitate marking.

A 4x5 inches objective, either the one used in making the negative, or better, one set apart for this purpose (rapid rectilinear), with largest diaphragm, is now fixed on No. 2, which is then pushed clear into No. 1. A negative clear in the shadows is placed backward into the opening of No. 3, which is then pushed over No. 1. The negative is facing film-side in; no ground-glass back of it is required.

The negative is turned toward the light and focussed on a ground-glass in the printing frame. The necessary distances for the different enlargements—from 5x7 inches up to 7x9 inches, and for portraits or middle sections to even greater sizes—are marked on the outer sides of the boxes. For greater convenience, a cut 4½x6 inches may be made on the narrow side of box No. 1, toward the open end, to move the objective into focus, after which the cut may be covered to exclude light. When enlarging, the

objective is diaphragmed down very much, the room darkened, using only orange light from a moderately large petroleum lamp, which has no chemical effect on bromide of silver paper. The sensitized paper is then placed against the protruding edge of the printing-frame end, placing a black cardboard behind it, and pressing on the back cover. A focus cloth is placed over the end, holding the lens; the apparatus is carried out-doors, the negative end pointed toward the sky, and an exposure made of 10 to 30 seconds, according to the density of the negative and the strength of the light. Development is carried out with amidol, and in 2 to 3 minutes a brilliant copy of 7x9 inches or over is the result.

A great advantage of this mode of copying is the ease with which possible flaws in the negative may be counteracted by momentarily interposing the hand or a cloth, thus favoring a too thin foreground, etc., for instance. The light also being the very best obtainable, free from obstructions or reflections, the usual ground-glass before the negative discarded, such brilliancy is attained as to make the uninitiated mistake the copy for an original.

WORKING UP ENLARGED BROMIDE PRINTS.

We will suppose you wish to finish a landscape on bromide paper with crayon or charcoal. First you gain a delicate effect of shade by laying a faint flat shade over *the whole picture* with a soft stump. Next secure the high lights with rubber or bread. Now, in shading, you must judge well amongst the lights

which are those that possess the first degree of brightness, and so among the shades which are darker than the others, and in what manner they mingle together; and quoting from Leonardo, "Let your lights and shades be joined without lines or points, but mix with each other like *smoke*." And when you shall have brought your hand and your judgment to this amount of exactness, the practice of drawing will come to you so fast that you will not be even conscious of it. The really important part of a shade is its depth and smoothness of form. Put in the main shades before you attempt any details. Lay them flat; general effect is all-important.

Be sparing of your highest lights, and more especially of deepest shades. It is better always for a drawing to be too light than too dark. Select and focus your high lights carefully. You may have interiors to finish, and here is a golden rule: Preserve carefully the *reflected lights* as seen in the shades. No relief can be got without them.

Cast shadows are of extreme importance. They are those which are thrown by one object on another. They are darker than the shades on the object casting them, and darker at their edges than within. They are darkest at the side close to the spectator. Neither the highest lights nor darkest shades on spherical or rounded bodies are found on the edges, but usually a good way within the outline.

As to shade. The following are important distinctions to be borne in mind by the amateur. Convex surface exhibits shade where it contrasts most forcibly with the light, because there is a greater

amount of our old friend, the atmosphere, between the spectator and the distant than the nearest part. Concave forms focus near the extremity of shade farthest from the side the light shines from.

Flat surfaces show the centre of a shaded part lighter than the rest.

Reflected light is usually strongest on rounded objects.

Polished surfaces have their lights most highly focussed and sharply edged.

Breadth must be preserved or high finish is labor in vain.

These are golden maxims, and the reader would do well to post them where they can be often referred to.—C. A. SNOW.

Aquarelle Painting.—It is rather difficult to paint photographic prints in aquarelle; the special colors cannot be suitably applied; of all the processes known up to the present time none give entire satisfaction. Mr. P. Champion points out this excellent process: Make the prints on chloride of palladium paper. This paper has the double advantage of giving unfading prints imitating the tone of an engraving, and of taking perfectly well the aquarelle colors without any special preparation. The image being fixed and mounted on cardboard, the water colors are used in the same manner as on ordinary paper.—*L'Amateur Photographe.*

PRACTICAL STEREOSCOPIC WORK.

Jex Bardwell, a veteran worker in this direction, gives clear instruction in this fascinating art as follows:

"A 4 x 7 mount is as large as I think ought to be used, and I like a buff color best. For this size there is no necessity of using a larger plate than a 6½ x 4¼. I myself prefer to cut and transpose my negatives. It is less trouble to print them, less trouble to mount, and there is no danger of the view breaking in the middle. A 3½-inch to a 4½-inch focus lens is what I should recommend, but for pure landscape a single lens of 5½-inch focus might be used. For special work I have used to advantage a lens of seven-inch focus. For interior work it is sometimes necessary to use a very short focus wide-angle lens. In this work, as in all others, there is an advantage in having more than one set of lenses. Orthochromatic plates will be found of great service in stereoscopic work. Above all, beware of *over-intensity*. It is the bane of a stereoscopic negative. Spend all the time needed in the selection of your view; it is of more consequence in a stereoscopic negative than in any other; and pay particular attention to the *selection and arrangement of your foreground*, as this is the *great secret of a successful stereoscopic view*. Metol I recommend as the developer for a stereoscopic negative. I obtain with it better detail and greater transparency in the dark places than in any other developer I have ever used, with great freedom from stain or fogging. I again say, beware of *too much intensity*. I do not like a burnished slide. I prefer the cold roller. I have seen slides cut 3¼ inches from centre to centre. This is altogether wrong. They should never be more than 2⅞ inches. I do not mean from outside to outside; that may be 3¼ inches if you so desire; but from some

object on one side to the same object in the other half the space should not exceed 2 inches. Have everything sharp, clear, and full of detail, and very little black or white in the picture. I again give the metol formula that I find works very satisfactorily:

No. 1.

Metol	60 grains.
Sulphite of Soda (dry)	180 "
Carbonate of Potash	180 "
Water	8 ounces.

No. 2.

Bromide of Potash	1 ounce.
Carbonate of Ammonia	1 "
Water	20 ounces.

" For use, the proper proportions of No. 1, No. 2, and water, will much depend upon the exposure and subject. For very quick exposures you might use No. 1. It will bring out very quickly all there is to be got, and in fact if the light was very good, the image will flash out so quickly that you might suppose that all was lost. But you will find (if not overtimed) that everything possible has come up; then give it time and you will find the density gradually come up without fogging the shades. On fixing you will be surprised to find the finest gradations of tone. With plates which have had time-exposure use, say, No. 1, one ounce; No. 2, from thirty to sixty drops, and one ounce of water; and with a few trial plates vary the quantity of No. 2, and use more water. By this means you will soon understand the working of this particular developer with a certain quantity of No. 1, while by variations of exposure and with variations in the

quantities of No. 2 and of water you can get any result desired."

STEREOSCOPIC TRANSPARENCIES.

We must concede that stereoscopic prints do not compare in beauty of effect with stereoscopic transparencies; but I do not go so far as some in counselling transparency-making alone, for in the preparation of prints one can graduate in the small niceties of stereography, and let them find ultimate expression in transparency work. Besides, sensitive paper is cheaper to learn on than glass plates. In actual practice, transparencies are easier to make than prints. What I have said of the desirable qualities of stereoscopic prints as compared with monocular prints applies in like degree to binocular transparencies as compared with lantern slides. The ideal brilliancy, clearness, and transparency of the latter are not necessary; indeed, they are in the nature of drawbacks. Of the methods of making glass stereographs, commend me to that by copying in the camera. The following outline of a working method will supply such details as will enable an amateur to undertake stereoscopic transparency-making at a very small outlay of ingenuity and money. At the back of an open box, having a central partition, the negative is placed in a suitable holder, inverted as regards top and bottom, film side out, and facing the light, which may be either direct or reflected. The binocular camera used for the negative should be fixed to a rigid board and register secured between negative and ground-glass.

The space between the objective and the negative-holder should preferably be covered in with opaque material. The two images, as seen on the ground-glass, will not be inverted, and will be in their proper positions as regards left and right, and consequently will not need transposition. The same rules as to identity of base-line and inclusion of subject must be observed as with prints, but you will easily see that they are considerably simplified. I myself use a special camera for the purpose. When the transparency is developed and dried it is masked and bound up in the usual way, and, being viewed through its glass support, is backed up with either plain or ground-glass.

For viewing slides or transparencies, a stereoscope of the familiar Holmes form will be found convenient, but it is very seldom found made in accordance with theory, as it should be so adjusted as to allow of the separation of the lenses to suit degrees of separation found in the eyes of individuals.—THOMAS BEDDING.

PROCESS WORK.

The Position of the Screen in Half-tone Reproduction and the Choice of Diaphragms.—On this point Macfarlane Anderson speaks from his experience as follows:

Let anyone expose on a subject with the grating $\frac{1}{32}$ of an inch from the sensitive plate, making the exposure with, say, stop *f.* 8. Let another exposure be made, using stop *f.* 16, and yet another with stop *f.* 32. It will be found on development that the three

negatives, each of which was taken with the screen in the same position, proportionate time being also allowed in the exposures to make all three equal, are entirely different in the results, so far as the stipple is concerned, and therefore the printing qualities of the tone-block will prove equally different.

The results will be: *f.* 8, high lights nearly white, devoid of power and sparkle, and all the delicate intermediate tones "blazed out," giving a general appearance of a fuzzy, over-exposed subject.

F. 16 will show detail to the very tip of the high lights, which will have enough sparkle and touch to them to make the very soul of the engraving; whilst the whole scale of intermediate tones, from white to black, will pass through a variety of different-sized dots, single lines, and curves, giving power, depth, and effect to the picture.

F. 32, on the other hand, will show more of the dot in the high lights, flattening the picture into a mussy mass, consisting of some two or three gradations, the subtlety of light and shade gone, dead, leaving a beautiful fuzzy reproduction of the grating, a very good illustration of a dismantled musical instrument with three-fourths of each octave gone. This is the European school, and still too often seen at home.

Those who work from transparency I would caution against making their tone negatives with the grating in contact with the transparency, as has been recommended by the Meisenbach school, a fact which, no doubt, has much to do with our cousins' "screeny work."

Having again proved to our satisfaction, by practical demonstration, the cause of another factor in the production of "screen and no picture," we will feel more contented and more entirely master of our work by informing ourselves of the primary cause giving us this effect or defect.

Working and experimenting in this manner since the early 80's has proven to me these facts as I shall state them to you. If the source of light bearing the image which is projected through the grating were a point, then the opaque lines of the *grating* would cast a *perfect shadow* on the sensitive plate. However, the source of light being a *surface*, the shadow is surrounded by an imperfect shadow or penumbra, and as the lens is stopped down we have a diminishing of the penumbra and a better rendering of the screen effect. The proof of these observations "lying in the application thereof," I would quietly ask my fellow-craftsmen to discard the small diaphragm, remembering that the screen-grating is always in focus irrespective of stop, and that half-tone work cannot be, and is not desired, sharpened up to line work.

Negatives for Process Work.—It is not generally known that the general laws governing negative-making for the photo-engraver's use are closely allied to those applying to the production of good ferrotypes. Those in search of a reliable manual of wet-collodion photography applied to process work will find what they need in *The Ferrotyper's Guide*, which contains many valuable formulæ and hints on manipulation for this work.

The Choice of a Screen.—In deciding on the purchase of a screen the number of lines to the inch is an important consideration, and the mistake which most beginners make is in selecting too fine a ruling. Screens of 85 and 100 lines to the inch are almost always ignored, yet it is surprising what vigorous results these will give if used rightly. A coarse screen gives more contrast than a fine one, and the only disadvantage of the former is when fine detail has to be rendered. For large portrait heads a coarse screen is best, and naturally the resulting blocks print well in rough newspaper work. For a good all-round screen we recommend 125 lines, but if one already has a 133-line screen, then we advise 120 as the medium. For high-class magazine or book work 150 lines is fine enough for anything. The only other rulings which need be considered are 175 and 200 lines to the inch. For the reproduction of microphotos the former is invaluable, and as regards the latter, its use is very much in the nature of an experiment.—*Process Work.*

Reproduction of Oil Paintings.—The means adopted for the reproduction of originals of various kinds differ in detail with the subject, but in one thing do all of them agree, and this is, *the general principle of placing them in regard to the light.* This principle is as follows:

1. Always work from the dark to the light.

2. The picture should never receive all the light from the front.

3. To the height of the original the side-light should be excluded.

For reproductions of oil paintings those will obtain the best results and richest half-tones who copy in the full light of the sun, but as this is always dependent on wind and weather, and as both apparatus and picture are exposed to many risks and dangers, we prefer to use the steady light of the atelier for the same purpose, and let us see how we can secure the best results. We place the camera-stand as low as possible, and give to the camera an upward direction, placing it at the same time at right angles to the slightly forward inclined original. The side curtains to the level of the top of the original are closed, and the space opposite to it is darkened; a black curtain placed in front of the camera, with a hole in the centre through which the tube passes, does excellent service. The floor between the picture and the apparatus should be covered with black cloth.

Mirrors for Reproduction Work.—The glass for making mirrors must have its surface optically worked. The following solutions are required, viz.:

(*a*) Eighty grains of nitrate of silver dissolved in two ounces distilled water.

(*b*) Eighty grains of pure caustic potash dissolved in two ounces distilled water.

Ammonia solution is added to *a*, drop by drop, continually stirring, until the whole of the silver is deposited and redissolved. When all the silver has been redissolved the solution becomes clear. The potash solution, *b*, is then added, when the solution again becomes black. More ammonia solution is added drop by drop, stirring as before. The slower the ammonia is added, the finer the division of the

silver is. When the solution again becomes clear the action is complete. A weak solution of silver is then added drop by drop until a *very* pale brown color is attained. Errors may be corrected by adding more silver or ammonia as may be necessary. The silver should be slightly in excess in the final solution. This solution should not be kept, as it becomes a powerful explosive. Filtering is not recommended. Two and three-quarter ounces of the solution are taken, and water added to make it up to eight ounces. The glass for the mirror having been made chemically clear with nitric acid, and washed in distilled water, is placed in a bath face downward, but supported, to prevent the face from touching the bottom of the bath. It is then covered with the solution for a few minutes. Half an ounce of reducing solution (10 per cent. solution of sugar of milk or grape sugar) is then taken, and the solution from the bath poured into it. It is then poured back carefully over the mirror, avoiding the formation of air-bubbles, when the deposition of silver begins to take place, and the solution becomes muddy. The slower the action takes place the harder the deposit. Leave until all the silver has been deposited, then pour off the solution; wash with distilled water several times. Dry carefully, to avoid markings, and polish the face of the mirror with rouge when it is completed. It may be kept for use, wrapped in velvet.—J. MILLER.

Vignetting half-tones.—This is done, says the *Practical Photographer*, by carefully etching the edges of the picture with ferric chloride. After the ordinary etching is complete, the solution is judiciously ap-

plied with a brush until the dots are reduced to a very fine point. It is said that this method gives better results than the use of tools.

In an interesting paper on the "Father of Half-tone," in the *Inland Printer*, Mr. S. H. Horgan says that the first ruled glass screen used in half-tone photo-engraving was made in New York in 1865, and was the invention of Col. Baron Frederick von Egloffstein. The screen consisted of a sheet of highly polished plate-glass, covered with a good asphaltum etching ground, heated and smoked over a wax taper in the manner of the engraver's black-etching ground. When cooled, the plate was ruled over with a diamond or other point of a ruling machine. The method of using the screen was to expose the sensitive plate to the action of light through the screen and then to the photographic image by a second exposure to light; both images were blended into one, the screen giving texture to the photographic image.

STRIPPING COLLODION FILMS OF LARGE SIZE.

The *British Journal* gives a reliable method for effecting this purpose as follows:

"When a collodion negative is taken with the intention of its being afterward stripped from the glass support, it is desirable that the plate, after being cleaned, be rubbed well over with powdered steatite or French chalk. A solution of white wax answers equally well, so far, at any rate, as regards stripping facilities.

"Having prepared a plate with the substratum,

apply a coating of plain (uniodized) collodion of a good body—that is, one containing from six to eight grains of cotton to the ounce of solvents, and, when well set, lay the plate in a flat dish of water, imparting a rocking motion to the same until the water is seen to flow smoothly over the surface without any seeming greasiness being apparent. Instead of being washed in a dish, it may be done equally well by a rose faucet attached to the ordinary water tap.

"After allowing the water to drip off, coat the surface with diluted albumen, in the proportion of the whites of two eggs to a pint of water, the whole having been well beaten up together. When dry, the plates may be stored away until required for use, when they are coated with iodized collodion, sensitized, exposed, and developed in the usual way. Having been washed, a second application of the diluted albumen is made, and the negative is dried.

"It is now ready for the final varnishing with plain collodion in which have been dissolved six or eight drops of castor oil. This is allowed to become dry.

"To remove from the glass, run a knife around the margin, when the combined film will leave the plate with facility. The pellicular negative will be tough and strong, and, owing to the presence of the castor oil, will remain flaccid, and not be inclined either to curl or to crumple.

"One special advantage of this system is the excellent manner in which a pellicular negative lends itself to the preparation of surfaces for mechanical or process printing—such as collotype and photogravure—without reversing the position of the scenes, whether

figures or other compositions, on the finished prints; for with a collodion pellicle it will be readily understood that there is absolutely no practical difference in the sharpness and gradation obtained, when either the front or the back is in contact with the sensitive surface."

HALF-TONE ETCHING ON COPPER.

Considerable attention has been given during the year to the improvement of the known methods of etching on copper. We append beneath two reliable formulas for the enamel solution employed, in which many workers find trouble and failure. According to the *Photogram*, Le Page's Liquid Glue, No. 20 F., is carefully clarified as follows: Take

Fish Glue	8 ounces.
Water	8 "
Albumen (white of egg)	8 "

The water is first added to the glue with thorough stirring, then add the albumen, still stirring to insure thorough mixture. This mixture is then placed in an enamelled pan capable of holding twice the amount, and then heated to the boiling-point; stir well all the time, and boil one minute. The liquid is then poured into a bottle through a funnel, over which a couple of thicknesses of fine muslin have been previously fixed. The clarified glue is thus secured in the bottle, leaving the coagulated albumen containing the sediment in the muslin. With this clarified glue the sensitive solution may be made by the following improved formula:

Fish Glue (clarified)	4 ounces.
Albumen	2 "
Water	2 "
Ammon. Bichromate	120 grains.

"Take a wide-mouthed, corked bottle, place in it two ounces of clean glass, broken small. Weigh out the glue into a small jar. Pour into the bottle and add the albumen. Dissolve the bichromate in the water and add to the mixture. Now shake until the whole is well frothed, and allow to stand in darkness for twelve hours. Then carefully filter without disturbing the scum, and the solution is ready for use."

Another formula, given in the *Inland Printer*, is:

"No. 1. Dodd's Superfine Glue	2 ounces.
Water	2 "
No. 2. Merck's Bichromate of Ammonia	120 grains.
Water	2 ounces.
No. 3. Whites of eggs (albumen)	2 "
Water	2 "
No. 4. Chrome Alum	120 grains.
Water.	2 ounces.

"Be sure you get the glue mentioned; no other will answer quite as well. Allow the glue to soak up its two ounces of water. Dissolve the bichromate of ammonia in its two ounces of water and add to it thirty drops of the chrome alum solution, No. 4. Heat the glue, after it has absorbed the two ounces of water, until it is almost boiling. Heat No. 2, when the chrome alum has been added, and pour it into the hot solution No. 1 while stirring the latter. Beat the whites of eggs up well in the two ounces of water and add three or five drops of aqua ammoniæ. When the mixture of No. 1 and No. 2 cools some stir in No. 3; filter the whole while warm. Whirl

the copper plates after flowing in this solution to get an even coating. Do not be afraid to burn it in until it is a dark brown. Use an aniline dye in the water that the print is developed in. There are many reasons why with different operators the enamel solution will give varying results. Remember the chrome alum solution is the key to the operating. Addition of alum makes the solution difficult to flow and develop, but makes the film harder, and *vice versa*."

A third method, given by Mr. Henri Calmels, is as follows:

The polished copper plate is sensitized with the following solution:

Fish Glue	2 ounces.
Albumen	2 "
Water	4 "
Ammonium Bichromate	60 grains.

The plate is then placed on a whirler so as to produce evenness of coating and remove the superfluous solution. After drying, the plate is ready for exposure under the negative, which, of course, has been associated in the camera with a lined screen. In the case mentioned the screen used had 135 lines to the inch. The exposure necessary for a copper plate prepared in the way described is about two minutes to direct sunlight. Development is brought about by simply washing in water, which dissolves out the coating solution where the light has not acted. It will be observed that no rolling up with printing ink is necessary, as in the case of a zinc plate etched in acid. The plate is next strongly heated until the coating assumes a brown color. For this purpose use an

iron plate which is heated from below with a powerful Bunsen burner. After cooling, the plate is put into an ordinary porcelain development dish and covered with an etching solution of perchloride of iron (strength 30° Baumé). At the end of about a quarter of an hour the etching operation was complete.

One point of difference between the American and European methods of photo-etching on copper is worthy of remark. In Europe the enamel coating, which by the methods there used is apparently troublesome in manipulation, is removed from the plate before printing, and a considerable time is required for the completion of the etching. By the methods used in America, speaking from our experience with Wolfe's process and the well-known Adamantine method of Mr. A. C. Austin, the enamel coating is left intact and perfect on the plate, and not only serves as a protection, but also gives finer results than are otherwise secured, and will stand the printing from 50,000 to 75,000 impressions without showing signs of wear.

By the American methods also the time required for etching is considerably shortened, especially by the Adamantine process, in which the plate is coated, exposed, developed, burnt-in, etched, and made ready for the "prover" in twenty minutes.

PHOTOGRAPHY IN NATURAL COLORS.

This interesting question has occupied many workers during the year, and is being practically solved in

certain directions. No new methods are announced, but the old lines have been retraced with more care than ever, and we have now available several methods by which photo-mechanical reproductions of colored objects may be had suitable for commercial or artistic purposes.

The Coloritype Co., of which Mr. William Kurtz is president, has produced much excellent work in this line, using the Vogel-Kurtz process. A specimen of this process appeared in *Wilson's Photographic Magazine* for November, 1894.

Mr. R. D. Gray early in the year exhibited at Chickering Hall, N. Y., a collection of beautiful transpariences, showing scenes photographed from Nature in the Adirondacks, Yellowstone Park, etc. These views, enlarged to 15 feet square and reproducing with great fidelity the wonderful colors of the original scenes, were received with wonder and admiration.

Mr. Ernest Edwards, of the New York Photogravure Co., has also achieved remarkable results in the reproduction of objects in color by the chrome gelatine process.

Numerous foreign workers have also contributed to the solution of the problem, but after examining all the work published, the palm must in justice remain with the American experimenters.

APPLICATIONS OF PHOTOGRAPHY.

Prognostications of the Weather by Photography.—According to Dr. Zenger, of Prague, photographic

prints of the sun on orthochromatic plates offer an excellent method of indicating, with almost absolute certainty and at least twenty-four hours in advance, the atmospheric changes which are to occur. These plates present sometimes zones around the sun's disk —that is to say, rings of circular or of elliptic shape and of a white or grayish color. When these zones have a large diameter and a dark tone they always indicate violent storms, high winds, lightning, or magnetic perturbations, which will occur shortly in the place in which the observation is made. Dr. Zenger is very desirous of making the application of his idea, especially in the Navy, and believes by it we would have a method of prognosticating the weather in which a great deal more confidence could be placed than in the barometer.—*Helios.*

Chronophotography.—M. Marey is proceeding from conquest to conquest. His latest studies have been applied to the movements of the articulations of the body, and he has thus obtained a series of photographs of the movement of the head upon the vertebral column. To obtain the pictures, M. Marey covered the head of the subject with a black velvet hood, open at the nape of the neck, with a little mirror fixed behind. The subject then turned the head slowly, with his gaze fixed upon a horizontal line placed a little distance away. In taking a series of photographs following this movement, it was found that the point of light from the mirror, instead of following a horizontal line, was displaced by a curve turning its invexity upward.—*News.*

To Photograph Running Water.—M. F. Schmidt

tells us how to get on the same print an instantaneous fall of water and the exposed woody background. Make one after the other, from the same point, two exposures of the same subject—one instantaneous, which will give you a live cascade, but the landscape will be hardly visible; the other with sufficient exposure to get a good landscape, whilst the cascade will be entirely solarized. An easy retouching will render the landscape of the first plate and the cascade of the second completely opaque. Now print successively to the right point your two negatives on the same print, care being taken to make a careful adjustment at the second impression. In this way you will have a landscape which will have all its value and the cascade all its interest. This operation requires naturally a great deal of artistic feeling, and more than one in the application of the process will not obtain a satisfactory result.

For the truly artistic photographer it is a valuable resource and of a very general application, as the subjects are numerous in which different parts require incompatible exposures.

The orthochromatic processes employed with art yield in many cases a more direct solution; but orthochromatism does not yet present sufficient elasticity to give a satisfactory result in all cases.—*L'Amateur Photographe.*

MISCELLANY.

Mattolein.—Photographische Correspondenz gives two formulas for the retouching varnish, mattolein; the first:

Gum Damar	1 gramme.
Essence of Turpentine	5 grammes.

and the second:

Gum Damar	8 grammes.
Pure Caoutchouc	1 gramme.
Benzoine	200 grammes.

It must not be forgotten that mattolein should be exposed to the light for some time; the resins entering into its composition end in time by combining either with the essence or with benzine, and it becomes more unctuous and pasty than when used fresh. Retouching with the pencil is also much easier.

Enamelling Prints.—A good formula for enamelling all kinds of prints is as follows: make the following solution:

Ether	600 parts.
Alcohol at 90°	400 "
Gun-cotton	8 "
Glycerine	12 to 15 "

This varnish is placed on the print with a brush; after drying, the surface of the print is brilliant.

A Process to Soften India-rubber Articles that have Become Hard.—India-rubber bulbs, tubes, etc., that have become hard and fragile with time, regain their primitive condition, we are told by M. A. Corsi, by plunging them for a time, varying from a few minutes to an hour, according to their hardness, in the following bath:

Water	2 parts.
Ammonia	1 part.

In case there should be fissures or breaks, they should be closed after the softening by coating their

edges with India-rubber varnish, which is obtained by dissolving pure rubber in benzine.—*L'Amateur Photographe.*

Burchett's Color Screens—the latest contribution to the science of orthochromatics—receive much praise in the European journals. These screens, intended for use in the reproduction of colored subjects, for securing natural skies in landscapes, for eliminating the effects of halation when photographing against the sun, as well as for mist and sunset effects, consist of a yellow (like amber) and a green screen. In practice these are placed within the lens tube, the green screen being placed in front and the yellow screen behind the diaphragm slot in the case of a doublet lens. For use with a single lens, the screens are cemented together and placed behind the lens. The results secured with these screens are said to be of a very high order, but we cannot understand upon what grounds they can be patented as original inventions or improvements.

Hyposulphite of Ammonium.—Much has been said recently in regard to the superiority of hyposulphite of ammonium over the old fixing agent, but it is still difficult to find it in the hands of dealers, even at a high price; here is, according to Liesegang, a method for preparing this product: Mix in equal parts a solution of hyposulphite of soda and a solution of chloride of barium; a precipitate of hyposulphite of barium is formed. This precipitate is treated with carbonate of ammonia, and a solution of hyposulphite of ammonia is obtained. Commercial hyposulphite of ammonia presents itself under the form of

white crystals, which leave no residue after solution. These crystals may be kept for a long time if placed in well-stoppered yellow bottles. It sells for seventy cents a pound.

Mirrors on Celluloid.—A sheet of transparent celluloid is coated with a layer of silver or other reflecting metal, and backed with a sheet of the same material, but not transparent. In this way an inflammable but unbreakable mirror is obtained. Possibly this invention may be applicable to optical instruments of large dimensions (telescopes, etc.), as, on account of the pliability of the material, the required form could be obtained with greater ease than with metallic mirrors. —*Photo. Archiv.*

Stained Negatives.—A negative often shows spots of various colors. If we place in printing a glass of the same color as the spot, this last will be greatly diminished on the photo-copy. The color of the glass should be as deep as that of the spot.

Retouching Negatives.—When a negative has portions that are too weak it is customary to cover those portions with an inactinic color, so as to give brilliancy to the final print. Mr. H. Chambon uses, instead of a wet color, an impalpable powder, which can be spread with a stump over the gelatine coating without injury to it; rub upon a ground-glass, with a few drops of alcohol, a red-chalk pencil; allow to dry, which is quickly done, and we obtain in this way a coating of impalpable powder. This is spread over the well-dried plate by means of a stump made of skin; if necessary, the operation is repeated several times. If the outlines of the part to be strength-

ened have been exceeded, the powder may be easily removed with a small paper stump. Finally, all the retouching may be removed by steeping the plate in water and rubbing with the finger.

Small Cheap Portraits.—W. T. Wilkinson proposes as a substitute for the tintype to take a negative of the sitter, and when this is washed, after fixing, put it into an enlarging camera; opposite the negative place a Gem or Victoria box, and proceed to make on bromide or Nikko paper twelve or more exposures; develop, fix, and wash; then, having a punch of the proper size, cut out the prints and at once mount upon the Gem or Victoria mounts, and the prints are ready for the customer.

With everything in working order these pictures can be got ready for delivery in an hour, and are much better than tintypes, vignette heads being especially nice.

To dry the developed prints rapidly, a final bath of spirits of wine must be given.

Nikko or bromide prints can be thoroughly washed free from hypo in ten minutes by laying them face down on a sheet of glass and squeegeeing the back, after rinsing under the tap, repeating the operation for a dozen times; then soak in alum for one minute, and repeat the washing and squeegeeing; use a scraper squeegee, not a roller.

To Transfer Prints on Albumenized Paper to Wood, Metals, or Porcelain, Watch Dials, etc.—Polish with care the object on which the print is to be transferred, then apply a thick coating of copal varnish, and before it becomes completely dry place on it the dampened

print made on albumenized paper so that the albumen of the paper adheres to the varnish; after having been allowed to dry for four hours, remove the paper with a wet sponge. The portrait adheres to the varnish, and may be protected by afterward varnishing. —*L'Amateur Photographe.*

Emulsion for Gelatino-bromide Paper.—According to Haffel, a gelatino-bromide of good quality for photographic papers may be made by dissolving over a water-bath:

Gelatine	12	grammes.
Bromide of Potassium	5.5	"
Citric acid	0.13	"
Chrome Alum	0.18	"
Water	218	"

The temperature is kept at 212° F. for ten minutes, and then is added:

Nitrate of Silver . . . . . 7 grammes,

agitate for five minutes and allow to cool.

The emulsion is afterward washed as usual, and the addition made of 25 c.c. of alcohol and sufficient water to form the volume of 300 c.c.

Caricature Portraits.—Interesting details have been received from Vienna about a new instrument which is destined to please amateurs. It consists of a sort of frame in which is placed a negative portrait, and which by the displacement of a shutter provided with a slit impresses the sensitized paper as it passes. As the rapidity of this passage can be regulated, and as the frame is furnished with a photograph, we obtain, instead of the normal image, an oblong caricature, flattened either in height or in breadth, resembling

the figures seen in concave and convex mirrors. The instrument requires no previous study; any negative will answer, and as the printing may be done in full light during the day, or with a lamp at night, amateurs will now have a new element to work with. The prints shown allow the prediction to be made that the apparatus will meet with certain success.—*Paris Photographe.*

Aluminium Flash-Powder.—Aluminium in powder is well adapted for producing an instantaneous flash-light for use in the photography of interiors and badly lighted places, and this light costs considerably less than that obtained with magnesium.

Professor Glasenopp recommends the following mixture:

	Parts by weight.
Aluminium in Powder	21.7
Sulphide of Antimony	13.8
Chlorate of Potash	64.5

These products should be pulverized separately, and the mixture made by shaking them in a paper bag. It should be carefully noted that *by pulverizing them in presence of the chlorate of potash a violent explosion will occur.* This mixture burns in the seventeenth of a second. A slower burning mixture may be obtained by using:

Aluminium in Powder	30 parts.
Chlorate of Potash	70 "

This last mixture burns in one-fifth of a second.—*L'Amateur Photographe.*

To Prevent Halation.—Generally the back of the plate is coated with lampblack diluted with oil of cloves, or aurine-collodion is applied. The effect

obtained is satisfactory for ordinary plates, but these methods are insufficient for orthochromatic plates. For these last it is necessary to have recourse to a body which absorbs the yellow-green rays. Here is the formula for preventing halation on orthochromatic plates:

Collodion at 2 per cent.	100 parts.
Aurantia	0.3 part.
Erythrosine	0.3 "
Castor-oil	2 parts.

The plate is collodionized in the manner used in the wet process. The coating can be removed after exposure or development.—*Photo Mittheilungen.*

ASSOCIATIONS, EXHIBITIONS, AND CONVENTIONS.

Gradually, but surely, the photographers are organizing, and the day is not far distant when each State will have its own association working for the benefit of the photographers within its borders. Speaking at the Ohio Convention, Mr. J. S. Schneider said: "I am a strong and firm advocate of State associations, and I believe that they will be of inestimable advantage to the profession. . . . It is by such social intercourse one with another, that we may unravel the professional tangles that have troubled us for years. It may be in this way and in this way only that we can help ourselves as well as others. Let mutual good-fellowship and sociability, therefore, be the motto of the associations.

The Photographers' Association of Iowa held its Fourth Annual Convention at Des Moines, February

1st and 2d. For some reason the Iowa Association does not meet with the encouragement it deserves, its membership being less than one hundred.

The Fourteenth Annual Convention of the Photographers' Association of America was held at St. Louis, July 24th to 27th. Over six hundred photographers attended, and the exhibition of photographic work and apparatus was said to be in advance of all other conventions.

The Fifth Annual Convention of the Ohio Association, held at Columbus, August 14th to 17th, was a complete success, over three hundred photographers participating in its gatherings.

The photographers of Indiana organized a State Association at Indianapolis, September 19th, and that city was selected for the first convention. Mr. Adam Heimberger was elected President; Messrs. G. G. Halloway and F. R. Barrows as Vice-Presidents; Mr. E. E. Shores (Vincennes), Secretary; and Mr. Ben. Larimer, Treasurer.

A meeting of the photographers of Missouri has been called for the purpose of organizing a State Association.

The London (Eng.) Camera Club held its annual conference at the rooms of the Society of Arts, Capt. Abney presiding, April 23d to 25th.

The Photographic Society of Great Britain, long known as the parent society of British photographers, has been granted a Royal charter, and is now known as the Royal Photographic Society.

The annual exhibition of the united societies of New York, Philadelphia, and Boston, was held at New York, April 17th to 28th. The standard of work shown was higher than usual, almost as many pictures being rejected as were accepted.

The annual exhibition of the Royal Photographic Society of Great Britain was held at London during September and October. Over 500 pictures were shown from 194 exhibitors, and 14 medals were awarded—in every case, with one exception, to pictures on matt surface papers.

RESEARCH.

Collodion without Ether or Alcohol.—Messrs. Cross and Bevan have discovered the method of dissolving gun-cotton in water. It is therefore possible to prepare a collodion without ether or alcohol. This great advance was obtained by treating the cotton with caustic potash, which converts it into a gelatinous matter owing to the sulphide of carbon. This substance at 212° Fahr. is soluble in water. This fact offers great facility in the preparation of collodion, and, besides, eliminates its principal objection, which is, that a very long exposure cannot be given without drying, and this for the reason that water is much less volatile than a mixture of alcohol and ether, which are now used to dissolve the gun-cotton.

A Substitute for Fluorhydric Acid for Stripping Negatives.—Fluorhydric acid is an excellent compound for this separation, but its action is too energetic. In addition, it is very dangerous, difficult to keep, and

requires special recipients of gutta-percha. The fluoride of soda or of potash may be advantageously substituted. It forms a pulverulent crystalline compound, which remains solid in a glass recipient and keeps for a long time. In a concentrated aqueous solution the gelatine pellicle of a negative detaches itself in a few minutes, and neither the glass nor the gelatine is attacked. M. Liesegang, who proposes this process, adds, that to prevent the enlarging of the gelatine pellicle, the negative is covered before the separation with a coating of collodion at 5 per cent.

The Action of the Light after Exposure.—The question of ascertaining if the action of the light persists after exposure has been studied a number of times, but we believe without a definite solution. M. Goderus is convinced, after scrupulous experiments, that this action ceases completely as soon as the exposure is ended.

Here is the experiment:

A plate is cut in two, the two strips are placed in a sensitometer and undergo the same time of exposure. One is developed immediately, the other on the next day or a week afterward. In both cases the same scales of tints are obtained.—*Paris Photo.*

Action of Camphor on Gelatine Plates.—So as to ascertain if the camphor contained in the films is the cause of the different defects in these last (fog, spots, etc.), two English experimenters have, for the space of a fortnight, covered some dry plates with pulverized camphor, placed others for three weeks in a solution of camphor, and others again for three hours

over the vapor of heated camphor. In all these plates, even after their development, the formation of fog or of injurious spots was not remarked.

Antidote for Cyanide of Potassium. — Dr. Kosso recommends a solution in the dose of one-third or one-half per cent. of permanganate of potash in a half litre of liquid. The permanganate converts the cyanide into insoluble cyanate of potash, which becomes innocuous.

Permanency of the Undeveloped Picture.—Prof. C. H. Bothamley publishes in *Photography* an essay on the durability of undeveloped impressions on exposed plates, or in other words the permanency of the latent picture in a gelatine bromide of silver film.

Two possibilities, he says, are to be considered: First, the change in the latent picture by light action; second, changes by circumstances, which in time injuriously affect the film itself, whether exposed or not.

The conclusions he arrives at are, that the latent picture as such, in a film of a thoroughly washed emulsion, is entirely permanent; and if destroyed at all, the blame lies with minute portions of soluble salts, most likely brom-salts remaining in the film.

Rapid Fixing.—Whilst scientists are seeking a salt to rapidly eliminate the silver without injuring the negative or the positive, an amateur chemist has discovered in permanganate of potash an important auxiliary. It suffices, says our correspondent, to plunge the fixed negative in a weak solution, but slightly colored with permanganate of potash, to obtain the desired effect. The liquid, which rapidly loses its

color, should then be renewed. As soon as it ceases to lose its color we may feel certain that all traces of hypo have disappeared. The positives may be proceeded with in the same manner, but it is essential to use the solution as weak as possible, otherwise the gelatine would become yellow. The yellow color, however, will disappear in any weak acid bath.—*Paris Photographe.*

Thiosinamine.—A new fixing agent recommended for chloride papers and plates by R. Ed. Liesegang. Thiosinamine is a colorless salt, occurring in crystallized bars, readily soluble in alcohol and ether, but with difficulty in water. Its reaction is neutral, its taste bitter.

Thiosinamine was produced and studied in all its characteristics by Dumas and Pelouze as early as 1834. It resulted from the action of aqueous ammonia upon mustard-oil.

The thiosinamine employed consisted of color- and scentless crystals, making a clear and neutral solution in water. This aqueous solution possesses considerable solving power for chloride of silver, much less for bromide of silver, and very little for iodide of silver. The solving power of thiosinamine for chloride of silver for the concentration of 1 to 10 per cent. is as great as that of hyposulphite of soda. For bromide of silver it is about five times less than the latter; still less favorable the proportions as regards iodide of silver.

Intensification of Negatives by Heat.—R. E. Liesegang says: "If a completed, still wet, bromide of silver gelatine negative is heated over a stove, the gelatine soon melts. But if first dried, and then again

soaked in water, a negative developed by pyrogallic acid may safely be dried by artifical heat without melting.

"After so drying it will be found to possess nearly double its previous density, with almost glass-clear shadows."

OPTICAL PROGRESS DURING 1894.

Interest in photographic optics during the year has largely centred around the claims made for the Goerz and Zeiss anastigmats respectively. The conclusion reached apparently is that all the recent introductions of these makers, together with the new Ross *Concentric*, present considerable advance over the older forms, and have many advantages where rapidity and flatness of field are desirable.

The telephotographic lenses of Dallmeyer, Steinheil, Parvin, Clement & Gilmer, have all received attention, and have alike been commended for their special purposes.

Steinheil has introduced a new copying lens, capable of covering a larger plate, and working at about one-third the exposure required for the aplanat to which it corresponds.

Suter announces a new hand-camera lens, which has a focal length of five inches, largest aperture *f*/9, and is fitted with an iris diaphragm and central shutter.

At a recent meeting of the French Photographic Society the "Synoscope Wide-angle Lens" was shown. It was claimed that this lens embraced an angle of 135°, with an aperture of *f*/20.

Pinhole lenses, which, of course, are not lenses, but

simply an attachment of the camera taking the place of a lens, have been placed upon the market in England. They are made in aluminium, upon scientific principles, and the price is about three dollars each.

Good lenses are essential to photographic work, and particularly so in portraiture. The difficulty in meeting the conditions of these lenses is no doubt great. The Bausch & Lomb Optical Co., have, after a series of experiments to obtain the highest results covering a period of several years, succeeded in devising two new series, which they are now offering to the professional photographer. While in a great many cases, the rapid rectilinear and symmetrical lenses are used for this class of work, and may be made to give good results, they still lack the valuable element of speed with other important optical qualities. The two series introduced by the above firm have speeds respectively of $f/4$ and $f/6$, and we understand that they are in the hands of some of the best-known photographers in the country. These lenses are provided with the iris diaphragm of new construction.

To Unscrew Objective Lenses.—To unscrew your lens, do not use pincers or vice. Take a piece of tape, make a turn about the part to be unscrewed, and pull strongly the remaining end in the direction for unscrewing; if not successful, apply moderate heat from an alcohol flame to the part of the screw of the body of the objective, and give a contrary motion on the part containing the lens and the body of the objective from which you wish to separate it.—*La Photographie.*

NOVELTIES IN APPARATUS AND CONVENIENCES.

A decided convenience introduced by Messrs. Anthony & Co. is a combination set of 6 backgrounds and a stand. The grounds are plain, graduated, and figured, and are mounted back-to-back. They may be arranged at any angle, reversed, or removed at will.

Strauss Marl, obtainable from all dealers, is a paste similar to *Gihon's opaque*, for use in the after manipulation of negatives, the production of shadow effects.

The *Climax Card-Cutter* is a simple machine, constructed on a new principle, and cutting a straight or bevelled edge as desired.

Metol Developer in one concentrated solution, made after the formula of the inventor of metol, is a convenience for photographers when travelling. In practice it is diluted with water and forms a reliable and economical helper.

Eastman's Platino-bromide Paper is a bromide paper which gives platinum-like tones of great richness and delicacy.

Netz Paper is a grained matt gelatino-chloride paper, received from E. Liesegang, of Düsseldorf. It is an excellent paper for giving charming results with softness and breadth. It is not, however, obtainable in this country.

The *Marcellus Cycloramic Camera* is an ingenious camera devised to record upon a single band of film a view of the complete horizon or any desirable portion thereof. It was fully described and a specimen print was given in *Wilson's Photographic Magazine* for May, 1894.

Walpole New Process Hypo Soda is a new and improved form of hyposulphite, in appearance a small crystal and very much purer and stronger than the ordinary foreign hyposulphite. Dr. Janeway, after careful tests, speaks of this "New Process" hypo as purer than any imported C. P. hypo he has seen.

The *Clinedinst Electric Photographic Apparatus* is an arrangement of electric light and an alcove formed of screens, by means of which portraits may be taken in any room without a skylight, with absolute uniformity and ease. The results gained are not distinguishable from those secured under an ordinary skylight; the manipulation and operating is of course much simplified. A detailed description of the apparatus appeared in the May number of *Wilson's Photographic Magazine.*

Anthony's Electric Light Apparatus is in principle similar to the foregoing, but the arrangements are claimed to be simpler, and it is lower in price.

The *Williams Flash-light Apparatus*, although not strictly belonging to 1894, has only been introduced during the past year among Eastern photographers It is a machine consisting of several hollow tubes at right angles to each other, and is connected at the base with any convenient gas supply. Small pans are arranged along the tubes to contain the flash-powder, and by pressure of an air-bulb, these pans are turned over the miniature gas-jets previously lighted, and a sheet of intense light results. (See also the May number of *Wilson's Photographic Magazine.*)

From a batch of circulars and lists received from Mr. H. A. Hyatt, of St. Louis, we glean particulars

of many profitable novelties for these dull times. Among these is the *Aureole*, a neat card-mount, 4½ inches square with a 3-inch circular opening. The photograph is mounted, etc., as usual on a thin card, and inserted behind this special mount. The completed picture looks very attractive. *Wood's Display Cabinet* is a device for exhibiting specimens without their being handled or stolen, and consists of a neat oak case containing several swinging leaves which hold the pictures. It is made in two sizes. No. 1, to hold 300 cabinets and 18 Paris Panels, mounted on a stand. No. 2 is like No. 1, but made to hang upon the wall. Embossed cameo pictures are coming into favor again. *McKee's Cameo, Embossing, and Imprint Press*, sold by Mr. Hyatt, is largely responsible for this. This press is a good thing, and the photographer who has it and will use it should be able to get a better price for his work thereby. The *Dixie Vignetter* is one of the simplest and most reliable devices of its kind on the market, and the cost is nominal. Any shape of vignette can be secured with this vignetter with ease.

A stereoscopic tripod head is a useful novelty. With this tripod head the worker possessing only an ordinary camera, can, by shifting it according to the attachment on the head of his tripod, secure pictures with fair stereoscopic effects when combined.

An improved ball-joint attached to the tripod head is another working convenience by which the camera can instantly be put at an angle without moving the tripod, which is sometimes desirable.

A very compact 4 x 5 folding camera has been in-

troduced by Mr. G. Gennert. This instrument which, when closed will go into an ordinary pocket, is made of nickel silver with leather bellows, and is fitted with a good lens. Complete it weighs only two pounds, and is practical and convenient in operation.

Klay's Multiplying Plate-Holder is a new form of holder, adapted to all studio cameras, by means of which from one to twenty-eight poses—all alike or different—may be obtained upon one cabinet plate. A view of the holder, with several specimens of its work, were given in *Wilson's Photographic Magazine* for June and July last.

Carbutt's Color Screens, supplied in sets of three for color reproduction work, have been introduced during the year in an improved form. These screens are made on scientific principles, and consist of approved coloring matter contained between two pieces of thin glass hermetically sealed. The glasses are absolutely plane, and the colors are spectroscopically tested. The screens are obtainable in two sizes.

The Thornton Pickard Manufacturing Company, of England, have opened an American branch at Boston during the year, and introduced their many specialties to photographers. One of the best known of this company's specialties is the Time and Instantaneous Exposure Shutter, which was fully described in *Wilson's Photographic Magazine* for September.

The Improved Gundlach Exposure Shutter is a noteworthy addition to instruments of this class. A detailed description may be found at page 420 of *Wilson's Photographic Magazine*, vol. xxxi.

Carbutt's Development Tabloids afford the amateur

or professional *en tour* a ready means of developing the plates exposed from day to day, or are equally convenient for home use. They are in the form of small round lozenges marked J. and C., one being the active developing agent, the other acting as the accelerator.

The Imperial Non-Halation Orthochromatic and the Eagle Equatorial Plates are two new brands introduced by Wuestner's Eagle Dry Plate Co. for the special uses indicated by their titles. They are both well recommended by practical workers.

A new Rapid Bromide Printing Machine, quickly and easily manipulated, and said to give excellent results, has been placed on the market by Messrs. E. & H. T. Anthony & Co.

A new plate called Gilt Edge 27 (formerly marked 26 x) has been introduced by the M. A. Seed Dry Plate Co., and the claim is made that it is the fastest on the market.

Mr. J. Hess of Mifflintown, Pa., has patented an ingenious Tray Rocking Machine, which may be made to do good service either in the dark-room or for toning and fixing.

Messrs. E. & H. T. Anthony & Co. have announced a background carrier with several novel advantages. The manipulating is all done with one crank or wheel, and the carrier is devoid of ropes, chains or pulleys. The ground can be adjusted to any desired height, and the rollers are so constructed that they cannot be indented.

The prize awarded at the St. Louis Convention for improvement in apparatus was given to the Auto-

matic Cabinet Attachment made by E. & H. T. Anthony & Co. This consists of a mahogany back, adjustable to any 8 x 10 or larger camera, having a ground-glass and receptacle for the plate-holder, or a sliding carriage. When focussing is accomplished the plate may be moved forward, and as it moves the slide is automatically withdrawn.

A convenient album for highly glazed prints of any size is the Schaefer Album, introduced by Mr. C. H. Loeber. A special feature of this album is its removable pages, which are obtainable separately, with openings of any desired size, and upon both sides of the page.

Non-Curling Kalona Collodion Paper is a new convenience, made by the New York Aristotype Co. It is said to keep indefinitely and to work as well when old as when new.

Bromo-oxygen is a disinfectant and deodorizer introduced by Messrs. Chas. Cooper & Co. It consists of a concentrated solution of bromine and permanganate of potash in water. Its usefulness in the dark room and workrooms cannot be over-estimated.

THE LITERATURE OF THE YEAR.

Every succeeding year the output of literature devoted to photography outstrips even the vigorous growth of the art-science itself. We have only room here for some of the more important works published for English speaking workers during the year.

Photography: Indoors and Out, by Alex. Black; *The Blue Book of American Amateur Photographers and*

Photographic Societies, by Walter Sprange, to be issued annually; *Aristotypes: and How to Make Them*, by W. E. Woodbury, illustrated with specimen prints. *Amateur Photography*, second edition, by W. I. Lincoln Adams; *The Photogram*, a monthly journal, edited by H. S. & C. W. Ward; *Bromide Paper*, (third edition), by Dr. E. Just; *Handbook to the Photochromoscope*, by F. E. Ives; *The Stereoscope and Stereoscopic Photography*, by F. Drouin; *The Junior Photographer*, a monthly journal for beginners, by Percy Lund & Co.; *Action in Art*, profusely illustrated, by W. H. Beard; *Portrait and Figure Painting*, by F. H. Fowler; *Sensitized Papers, How Made and Used*, by Henry C. Stiefel, Ph.D.; *Cyclopædic Photography*, a comprehensive handbook of the terms, formulæ processes, and apparatus employed in photography, by Edw. L. Wilson, Ph.D.

OBITUARY.

J. H. DALL (January); MAX PLATZ (March); C. D. FREDRICKS (May 23); HENRY E. INSLEY (August 7); DR. ADOLPH STEINHEIL (July); R. S. LEWIS (September); J. N. MCDONALD (October).

OLIVER WENDELL HOLMES, an early writer on photography, and the inventor of the American stereoscope, which has done so much to popularize this fascinating branch of photography (Boston, October).

SECTION II.

ORIGINAL CONTRIBUTIONS.

MICRO-PHOTO SCULPTURES.

BY LIEUT.-COL. JOHN H. JANEWAY, M.D., U.S.A.,
New York.

AN editorial article in the *British Journal of Photography*, May 11, 1894, on the above subject interested me at the time of perusal on account of its value as an educational aid. Since then I am convinced that the scope of this process is of much wider extent, and that we have in it, as detailed hereafter, an additionally pleasant and satisfactory mode of applying photography when the season forbids being afield, in the reproduction of other subjects in delicate detail, besides diatoms, insects of various kinds, and other microscopic structures, beautiful as they are. A few and incomplete experiments lead me to believe that excellent and beautiful results will reward the operator in this process by using small choice bits of landscape, statuary, full and bust figures, animals, etc., in addition to such microscopic objects as may be desired and obtainable. As the process as detailed in the above named article may not have been seen by many of the readers of MOSAICS, it is

proper that it should be reproduced here in order to enable any one, who desires so to do, to proceed intelligently:

"The process of reproduction in plaster consists in effecting a conversion of lights and shades of any suitable object, when seen in the microscope by transmitted light, into relief and hollows of vigor sufficient to be apparent to every one. If the degree of relief required were only a slight one, such as in the making of a plate for process printing, then might it be got by making an ordinary gelatine negative surface dry and applying heat, by which the image would be raised in low relief. But in the present case we want something of a more pronounced nature than can be obtained by drying by heat. A good well-defined negative is presupposed. To obtain this is now happily a work entailing no difficulty whatever, seeing so much has been written concerning photo-micrography. Some judgment must be imparted in the selection of objects, and to a beginner we would suggest an object to be found in nearly every collection. The *pulex irritans*, a well mounted specimen of which makes a very effective enlargement of about two and three-quarter inches, a flea being a large object (from a microscopic point of view), does not entail the necessity for employing a costly instrument in making a negative of it. Inserting the eye-piece of a microscope (which has been thrown into a horizontal position) into the front of a quarter plate camera, and focussing sharply, an exposure of about one-half minute more or less according to the light, will give a vigorous, impressed image, capable of being devel-

oped into a strong negative. Having obtained a negative, the next operation is to make from it a transparency. This is done by super-position in the usual way of producing lantern slides. A plate of glass about four inches square having been made clean and placid in a level position, is coated with bichromatized gelatine. The following proportions are those recommended by the late Mr. Walter B. Woodbury for similar purposes nearly thirty years ago, and having worked much with them, we can confirm their excellence.

Bichromate of Potash	20 grains.
Gelatine	4½ ounces.
Water	4 ounces.

The gelatine is first placed in the water, which in the course of two or three hours will have been absorbed, or nearly so, by it. It is then liquefied until warm, when the bichromate is added. When the glass plate is coated it must be allowed to remain indisturbed until quite dry. It is then ready to be printed upon. For the very finest class of subjects it is advisable to strip the gelatine film from the glass in order to take advantage of the fine glossy surface arising from contact with the glass. In this case it is needless to remark that this is the surface which must be next the cliché when placed in the printing frame. Time of exposure ranges from two to five minutes according to the power of the light. We may here observe that we have obtained sharp fine reliefs by printing upon the upper or outside of the bichromatized gelatine coating without removing it from the glass at all. When printed the film or plate

is thrown into a vessel of cold water, where it is allowed to remain for two or three minutes, by which time the image will be seen to stand out in bold relief from the smooth polished ground. By application of blotting-paper the surface moisture is removed, and a cast may be taken from the gelatine relief by any suitable means, plaster-of-Paris in this case. This method so far, is similar to that adopted by Pretsch in his process of photo-gelatine engraving, only he obtained his casting in copper by electrotypy. But in the process now advocated for a special purpose a plaster cast leaves nothing to be desired. If a little common alum is mixed with the plaster it insures the easy detachment of the cast from the cliché. After having become quite dry the border may have a finish imparted to it by the aid of a turning lathe, and from an original thus furnished hundreds of casts may be obtained, especially if a copper electrotype has been made from the first one, the last being in every respect as sharp as the first."

To any one desiring to make satisfactory casts by this process, which I am sure it will amply repay one to do, giving a positive in pure white, reproducing all the delicate details in relief in a remarkable manner, it will be well to bear in mind that there are some requisites absolutely necessary for success viz.: Judgment in choice of subject; a vigorous negative; a good strong glass positive. The plate upon which the bichromatized gelatine film is made must be absolutely level, and be generous with your bichromatized gelatine—in other words the film must not be too thin, to obviate the danger of tearing; and

do not hurry any of the different manipulations in the process. Patience in this as well as in all others brings its own reward.

NEBULOUS NEGATIVES.

BY JAMES REÜEL SMITH,
New York.

WITH so many recipes extant for the production of cloud-negatives, perhaps it may appear to be out of place to put forward a plea for their more plentiful production.

The foremost photographer in the land will, however, admit (will you not, O conscious reader?) that his finest effects have only been built up on a foundation of dispiriting failures—a foundation happily laid so deep that his admirers never have even a suspicion of its existence—only the fish nearest in communication with his developing sink know of it, and in their cold-blooded way appreciate the moist and foggy films, and grow fat on them, much as the landsharks fatten on the *spoils* of other workers.

May not the ambitious amateur receive a suggestion from this law—that failure is the best stepping-stone to success—and resolve, if a proportion, either larger or smaller, of cloud-negatives must fall to his lot, to make the best cloud-negatives that can be produced.

Success will immediately follow such a resolution.

For a moment's consideration will demonstrate that the way to make the best nebulous negatives is to expose the plates direct to the clouds.

So close an observer as Howells writes in one of his charming sketches that the clouds and sunset effects of New York are unsurpassed in any country. When a stranger, however, has once drawn attention to their beauties, it is no easier to be impressed by them than it is to secure an impression of them in a camera.

These mosaics in mist—wonderful high-art effects in moist water colors—lose in a photograph nothing of their beauty as regards form and outline, and no more of their splendor as regards color than do a thousand and one other subjects which, notwithstanding the limited pictorial powers of bromide, make pictures that need only a selection of this or that printing process to give them all the warmth that the most exacting have any right to expect from a negative.

There is, however, even wider scope for the exercise of judgment in making nebulous negatives than there is in terrestrial snap-shot work; many clouds possess no more pictorial merit than the steam from a tea-kettle, but the patient observer will soon learn where and on what days to look for cloud forms that may be satisfyingly perpetuated in plate and print; forms with marvellous gradations of tone that will make wonderfully attractive pictures, either for the sake of their graceful outlines and shading, or for the obvious allegory they portray or resemblance they depict.

Half a day's reading would hardly suffice to post the befogged amateur about the multiplicity of costly and complicated accessories that may be employed, and the wildly conflicting directions how to photograph a simple little cloudlet, although any attractive cloud ever formed will make a good nebulous negative on a rapid film in a $15 hand camera, which sufficed to make the negative of the accompanying

James Reüel Smith. New York.

NEBULOUS CLOUDS.

illustration of what, in the original sunset scene, suggested some terrific explosion amongst a demon host of dark cloud forms rushing to overwhelm the sun in his declining course.

In another negative I made, the northeast edge of the main cloud shows a pug-nosed face whose distorted

position and open mouth clearly bespeak the affrighted bellow that was necessarily lost to the ear at its distance of two or three miles.

HAND-CAMERA PRACTICE.

BY JEX BARDWELL,
Detroit, Mich.

THE hand-camera having been used as a toy, as an instrument of pleasure, as an instrument of public torture, is now assuming a higher rank in the hand of the daily and weekly newspaper reporter. Consequently a few words thereupon may not come amiss. I have had occasion during the past year to do considerable of what may be called snap-shooting, much of which has been used for the purpose of illustration, and as a matter of course had to have a deal of what I might call life in the results, for instance, of the people we meet. It may be some well-known person on the street; it may be some pleasant little group of children seated here and there amid the pretty surroundings of our parks, or it may be a stretch of roadway or street during some parade, where the sidewalks are crowded with all conditions of folks pushing and pulling one another.

On these occasions you may have to jump into the roadway and take your snap before the policeman can succeed in driving you back into the crowd. It is perhaps the day of the races—the horse race, the bicycle run, the regatta; or it may be a State or county fair, when you are called on to secure a faith-

ful representation of the prize ox, the big pig, the trio of chickens, and that awful litter of pups. Or we may be called to record some frightful accident or a murder committed. The dead man has to be taken just as he was discovered, the room or place sketched, the house or place taken, together with the surroundings, and so forth. I might go on everlastingly did I relate the half of what is required of the hand-camera reporter who is required to supply these sketches for the illustration of the morning or evening papers. The man who does such work requires a special aptitude for it. This can only be gained by experience, unlimited cheek, and quick perception of the opportunity. The best of everything should be employed to do this work. Skylight experience is not of much value to the hand-camera man. I would ask a few questions of those interested in hand-camera work for newspaper illustrations; it may help some of us. What length of focus should the lens have, or has been found best for street work?

What make of lens from 5½ to 7 in. focus on a 5x4 plate working at *f*/8 has been found satisfactory? State class of work and distance.

What make of plate has been found satisfactory, working at *f*/16 snap-shot in this case? Give the kind of shutter used, and, if known, the speed and the subject?

Any information on this line of work would be interesting and, I think, received with favor. In another paper in *Wilson's Photographic Magazine* I will give what I have found in my experience in regard to lens and plates, with my method of getting all I could get out of them.

"PER CENT." SOLUTIONS.

BY J. J. HIGGINS, A.M., M.D.,
New York.

In each fluidounce of a

1	per cent.	solution	there are	4.55	grains.
2	"	"	"	9.10	"
3	"	"	"	13.65	"
4	"	"	"	18.20	"
5	"	"	"	22.75	"
6	"	"	"	27.30	"
7	"	"	"	31.85	"
8	"	"	"	36.40	"
9	"	"	"	40.95	"
10	"	"	"	45.50	"
11	"	"	"	50.05	"
12	"	"	"	54.60	"
13	"	"	"	59.15	"
14	"	"	"	63.70	"
15	"	"	"	68.25	"
16	"	"	"	72.80	"
17	"	"	"	77.35	"
18	"	"	"	81.90	"
19	"	"	"	86.45	"
20	"	"	"	91.00	"
25	"	"	"	113.75	"
30	"	"	"	136.50	"
35	"	"	"	159.25	"
40	"	"	"	182.00	"
45	"	"	"	204.75	"
50	"	"	"	227.50	"
60	"	"	"	273.00	"
70	"	"	"	318.50	"
80	"	"	"	364.00	"
90	"	"	"	409.50	"
100	"	"	"	455.00	"

The U. S. standard weight for an ounce of water at 60° F. is 455.6216 grains, but in the table the decimal is disregarded, as neither graduate nor measurement would suffice for its division.

The per cent. multiplied by 9 and divided by 2 gives the grains in an ounce up to 10 per cent. For higher per cent. (or exact weight for any per cent.) add per cent. × 1/20.

A SUGGESTION.

BY GUSTINE L. HURD,
Providence, R. I.

SOME time ago I saw (in a *Year-Book*, I think, it was) an article by Mr. Falk, embodying the suggestion that some device should be found by which the image on the ground-glass of a camera could be viewed in its natural position instead of up-side down. I am not aware that this suggestion has been fulfilled, but we can all see how helpful its accomplishment would be.

There is another improvement which it seems to me might be made, and without any serious difficulty. I have plate-holders in mind. It is curious that with all the innovations that have crept in in camera construction since the days of the old Roberts box, that no less clumsy method of uncovering a plate has been devised than drawing out a slide. This method has two drawbacks which ought to be overcome by some of our inventors. First, there is always more or less liability of the admission of light, especially in any out-of-door work; and secondly, the slide is an awkward thing to dispose of while making the exposure. You can lay it on the top of the camera, where it is always liable to be knocked off, or, if in the open air, blown off; or you can put it away more securely, and spend your time in getting it and returning it to the holder.

The first of these troubles is a matter of some moment, for if you do not *often* find that light has

been admitted in withdrawing or returning your slide, it is sure to occur to a plate that you can hardly replace when it *does* happen; and I am inclined to think that it is not of infrequent occurrence in view-making, and not altogether unknown in-doors. That the second is a nuisance, pure and simple, requires no elaboration.

What I would suggest is that there should not be any separable parts to a plate-holder—no slide to withdraw; and if it could open from inside the camera so much the better. I think I have seen holders of the largest size provided with a slide on the principle of a roller-top desk, and that would seem to pretty nearly cover the ground; but I have not seen them in use with ordinary sizes. Perhaps there is some mechanical difficulty in the way; or perhaps they would not stand constant use so constructed. At any rate, it would seem that there should be some way to get at this most needed improvement, and I hope our camera-makers will take it in hand.

ON ART IN PHOTOGRAPHY.

BY A. R. DRESSER,
London.

You wrote and asked me to write an article on "Art in Photography," also on the subjects you reproduced in your MOSAICS of 1894. I do not want a paper war, but I give my ideas for what they are worth,

and strictly decline to argue the matter, as I have my own ideas on that point, and am quite willing for any one else to have his or hers also.

I think during the last year there has been more nonsense written on the subject of art and photography than I ever read about, and very few have ever tried to look at the matter in a proper light. Most of the writers remind me of the old class of parsons, who said, "you must believe as *I do* or be forever damned," and so it has been with most writers on art and photography, who, as far as I can read, say, as a rule, you must have the picture "*all out of focus*," "*partly out of focus*," or all as sharp as possible, etc. All manage in a clever way to prove they are right, any way, to their own minds and their friends.

Now, certainly you take the reading of what art means by the dictionary. It is quite an open matter, and leaves one to do what they like; and that is certainly my own opinion. I say art can no more be taught by writing on the part of those who think they can teach it than it can be taught by artists. I find, as a rule, artists will not write on the subject (except a few who make money by articles they write, and they write for the money, not that they think they will really teach much). So it is with art in photography; it cannot be taught by writing and reading. Of course, writing will give the reader *ideas*, but he must have the art *born in him*, so as to be able to know the good from the bad. I really think that the word "art" is misleading. It has no arbitrary meaning, as everyone thinks differently on the subject. For example, let any one who has a collection of good

subjects, go round to the various ART papers, and he will soon see how little there is in the word, as one person who is considered a judge of art by all will go half mad on a picture, and the next art judge will go mad on another print, and say there is no art in picture No. 1. I speak from experience, as I have a great number of different papers who ask me for pictures to reproduce, and I am, as a rule, greatly amused to see the difference of opinion in the matter by the various art editors who have to pick out the pictures they like best. I feel, therefore, quite sure that it is little good writing papers on such subjects; the best test, after all, is the public. By the public I do not mean every one, but the art public. If one produces a picture that all the papers speak well of, of course not all agreeing, then I say you have produced an art picture, if it can be produced. If one has to depend upon one judge, then each judge would say the subject he was fondest of was art, and no two would agree.

In conclusion, I say, what art there is in photography (or painting) must be born in one, and not had by reading articles which point to a different subject or way as art. Do what pleases you; and if one can produce a picture he or his friends can look at day after day, and not get tired of it, then I say that is art, even if it is only a tin pan on a wall.

Now these are my ideas, such as they are, and must be taken for what they are worth (I am afraid very little); but I always think, "open confession is good for the soul," and if not right, I say what I think is right in my opinion.

As to the pictures of mine you reproduced last sea-

son, I find they were liked, as a rule, and as it would not be good form for me to write on art on pictures done by myself, I sent the book to an artist, who is a well-known man, a photographer, and an artist, and one of the Council of R. W. S. (Royal Water Society). I send you a copy of his letter, as I don't want his name to appear in print. He writes as follows:

"When one takes into consideration that these are snap-shots, the marvel is that they are so full of seeming care in the choice of subject and arrangement of the same. With few exceptions, they compare well, being well balanced in line where there is an absence of shadow, and where shadow can be used it is used with taste and judgment. 'The Old Well;' 'Old Houses at Doll;' 'Mount St. Michael;' 'Lower Town, Quimperlé;' Upper Town, Quimperlé;' 'At the Church Door;' and 'A Calvary at St. Thégonnec,' are all samples of good light and shade and well placed material, all showing strong artistic feeling. The following, however, reach a far higher quality in artistic arrangement and choice of effect. They also contain a still greater quality, *i.e.*, almost perfect gradation, and in one or two instances, good tones and values, such as: 1 and 2. 'Oyster Women, Cancale;' 3. 'The Old Bridge, Dinan;' 4. 'The Market, Quimperlé;' '5. The Fish Market, Quimperle,' and 6. 'Gossiping at Pontaven.' It is difficult to conceive how they could have been arranged better and more carefully chosen in regard to their lighting. No. 6, and 'A Calvary at St. Thégonnec,' and also 'An Old Breton Beggar,' are very fine examples.

"Taking into consideration that the requirement of

an artistic standard (from a proper artistic view) are 1, composition (varied arrangement of objects and line); 2, light and shade (or tones and values) and 3, subtle gradation (from white to black) are all shown clearly in these photographs, the title of artistic photography can safely be given to the beautiful and interesting series."

[It will be remembered that about thirty pages of MOSAICS for last year were devoted to Mr. Dresser's paper on "A Hand-camera Tour in Brittany," and that the article was illustrated by twenty-five fine half-tone engravings from his negatives. As many of our present readers will have these, we reproduce (from the original letter, which we have seen) the testimony of a painter (also a photographic worker) for comparison with the criticisms to which Mr. Dresser alludes. It will be interesting and helpful to study them together.—E. L. W.]

THE NEW CARBON PROCESS.

BY CHARLES H. GRAVIER,
Paris.

THE carbon process[1] consists in exposing under a negative a sheet of paper coated with colored gelatine which has been made sensitive by immersion in a solution of an alkaline bichromate—say of potash.

[1] An excellent treatise on this process has been published by Mr. Edward L. Wilson under the name of the "American Carbon Annual."—C. H. G.

To develop, or rather to clear, the image, the impressioned surface is attached to a plate or to an impervious flexible support, and the whole is placed in a bath of warm water at about 50° C. The paper detaches itself, carrying away the greater portion of the non-impressioned gelatine, and that acted upon by the light remaining forms the image.

But to obtain this image in the original position (*i. e.*, non-reversed) it must be transferred to a definite support. We see, therefore, that this process, although less complicated than it appears, requires careful manipulation, and, to obtain the beautiful results that it gives, a certain amount of skill.

The prints have a brilliant or matt surface according to the mode used in drying them. This process gives the most delicate half-tones.

Another carbon process which does not give half-tones has been and is still used for making plans; it was about 1878 that Frederic Artigue proposed it; his son, Victor Artigue, improved it, and in 1889 he showed some remarkable prints having half-tones which, by the vigor and the velvety appearance of the tones, by the pearly brilliancy of the whites, astonished photographers the most difficult to satisfy. Not a single unfavorable criticism has been made on results of this process.

Here is the mode of operating:

The paper has a velvety appearance; the matt-colored surface is very thin. It may be sensitized in two ways—either in coating the back with a 5 per cent. solution of bichromate of potash, or by immers-

ing it for half a minute in a 2 per cent. solution of bichromate; the first mode is preferable.

Drying should be done slowly in order to avoid crystallization. It is necessary to use the paper the day, or at most two days, after it has been sensitized; non-sensitized paper may be kept indefinitely.

Exposure to the light is made as with all photographic papers — the colored coating against the negative; but as the paper is black, and the effect produced by the light is not seen, the ordinary photometer is used, or, better, the method indicated by Davie in 1864—namely, of exposing a strip of bichromatized paper to the light. To make use of this brown coloration as a typical tint, it suffices to withdraw in succession from the photometer pieces of the strip which will become colored; the capacity of the print will determine the number of coloration necessary, in order that the exposure of the print should be at the proper point; it is better to slightly overexpose.

For clearing the print the appliances are very simple, and consist:

1. Of two dishes, conical or hemispherical in shape, made of metal or glazed earthenware.

2. Of a zinc *pourer* similar to a coffee-pot, but having a spout of a diameter of 20 m. at the exit.

3. Of a thermometer that can be used in hot water (less than 30° C.).

4. Of two clamps to attach the paper to a wooden strip or to a glass plate.

5. Of 2 litres of very fine sawdust (from *white*

wood, to avoid the tanning action of the other kinds of wood.)

6. Of dishes to wash the prints.

In one of the deep dishes tepid water (not over 27 to 29° C.) is placed, and in the other dish a mixture of cold water and sawdust—it should be rather thick.

The impressioned paper is plunged into a dish of tepid water, and when it is seen that the image begins to appear very feebly it is withdrawn and fixed with the aid of the two clamps on the glass plate or on the wooden strip. Then, with the aid of the *pourer*, the mixture of sawdust and cold water is run over the coating; the image clears itself, and the operation is continued until the tones are weaker than those which are desired, as the velvety appearance of the image increases the intensity in drying.

The mounting on cardboard is very easy; the print is placed between two sheets of dampened bibulous paper and given a slight coating of starch paste.

To retouch the prints: The intensity of the tones may be diminished by using a soft brush when the print is in the water, and by this means it is possible to obtain highly artistic effects; certain defects may be corrected or certain parts strengthened by the aid of the wet colors used by aquarellists.

To resume: This process is very simple, inexpensive, and yields results not yet attained by any of the other photographic processes.[1]

[1] The causes of failures and the means of avoiding them were published in "Wilson's Photographic Magazine" of April, 1894.

RESIDUES AT THE PRESENT TIME.

BY D. BACHRACH, JR.,
Baltimore, Md.

ALTHOUGH this subject has been worn threadbare in so far as it applies to conditions existing heretofore, yet the superseding of albumen and plain salted papers so largely by those already prepared with either gelatine or collodio-chloride emulsions make the conditions somewhat different, and a little advice based on a careful examination of the elements with which we have to deal may be timely to some. It may as well be taken for granted, for reasons that will be apparent, that it is not worth while saving either the clippings or untoned prints on collodio-chloride papers. The most economical way to obtain the residues from them is to soak them in a little water, and save that with other "first washings," and then throw them into the used-up fixing solution the usual time required, and then throw the prints or paper away The reasons for this are that a sheet of collodio-chloride paper, 20 x 24, usually takes not over 1½ ounces of emulsion to coat it. Such emulsion seldom contains over 10 grains of nitrate of silver to the ounce, while a sheet of albumen paper on a 50-grain silver solution absorbs about 35 grains, and this, at present prices of silver, does not pan out so very rich; but when, in addition, the refiner has to contend with the baryta coating of the paper in the ashes, it pays better to soak out the little silver it contains (mostly in the soluble salts of free nitrate and citrate), while

the small residue of chloride of silver is taken up by the hypo solution recommended for the second immersion.

But the question has often been asked, "does it pay to save toned prints?" I think most decidedly that it does. It will be interesting to give a little personal experience bearing on this subject. Some years ago we took a contract for a large lot of "cigarette" or "tobacco photos," which required something like two reams of paper a day on bright days. We had great trouble to get rid, without expense, of the clippings of the card-board (they being mounted in sheets of nine pictures on a 9 x 11 board), and the waste used to lumber up our rather contracted rooms for this purpose. The paper-mill finally refused it, saying it contained a coloring matter of which they could not rid the pulp with their strongest acids, and unlike any they ever had. Here was a dilemma. I at once suspected that it was due to traces of gold in the black edges of the toned-prints left on the clippings. I ordered our foreman to have them burned up in the stove, the weather having become cold enough, and used for heating, and to save the ashes. After we had a good-sized dry goods-box full of them they were sent to J. F. Magee & Co., with instructions to use the mercury amalgam process for gold as an experiment, as I considered the amount in them not sufficient to warrant the crucible method. Their charge was 50 per cent. for the trouble, and our share for the box was *about fifteen dollars*, for what we had been glad to get rid of gratis. Now, when it is considered that at least three-quarters of the ashes were produced by the

cardboard, it will be seen that it is worth while to save the old rejected toned-prints and burn them up. The ashes refined by this method will not require the expensive work that those from our prints did, on account of not being mounted.

While the amount of silver in these papers is small, if separate toning and fixing-baths are used, especially gelatine papers, the amount of gold deposited is rather larger in proportion, almost half as much as on prints made on the old papers; hence it is worth while refining the old prints in the way suggested. But prints toned in the *combined* toning-baths usually employed, with lead and alum used, are not worth while saving, as they contain little or no gold. It is nearly all left in the solution. And I will here remark that no photographer who cares for his future should think of using *such* combined baths. There will be enough fading of prints toned in the better separate method to keep the "worry" element fresh and green. Enough has already been written as to the treatment of residues in the old hypo and toning solutions, which can all be dumped in one vessel, and refined together in the usual way, viz.: precipitation by means of the sulphides.

[An interesting article dealing with the subject to which Mr. Bachrach draws attention appeared in *Wilson's Photographic Magazine* for November. The larger quantity of spoilt prints obtained in using the new printing-out papers as compared with albumen printing, renders the residues question a matter for profitable investigation at the present time.—ED. MOSAICS.]

THE COMBINED BATH FOR ARISTO PAPERS.

BY E. M. ESTABROOKE,
Elizabeth, N. J.

IT is probable that every user of collodio-chloride or gelatino-chloride papers has already gained some experiences in the working of the combined toning and fixing bath so commonly recommended for those papers.

With many of the older photographers, I was rather distrustful of the combination, and it was only after a series of experiments that I arrived at the conclusion that this old and discarded process had real merit and positive advantages that were well worth the attention of the photographic fraternity generally.

These advantages are: Simplicity and facility of working, economy of material, durability of product.

By combining the toning and fixing of prints we shorten the time and reduce the labor over half. By repeated using of the combined bath we economize greatly in both gold and hypo, without detriment in any way to the beauty of the tones or durability of the print, while having at command a range or variety of tones equal to or greater than by the separate toning and fixing processes.

The formula that has given me the most satisfaction up to the present time is as follows:

Fill a large earthenware jar with water, add enough hypo crystals to make a saturated solution, to every gallon in bulk of solution add 2 ounces sulphocyanide of ammonium, and ½ ounce pulverized borax.

After standing twenty-four hours this is ready for use; then add gold to the quantity desired for use, to the amount of one grain for each dozen cabinet prints to be toned.

If this bath should work too rapidly, dilute with pure water until its action will be accomplished, in ten to fifteen minutes' time, when the color of the print will indicate the completing of the fixing action of the solution.

This formula will produce warm tones of agreeable tint and great brilliancy, such as can come only from the best separate toning methods.

The supply of gold should be liberal and maintained; the strength of the hypo should be sustained by addition from the stock from time to time as the progress of the work may indicate the necessity. Formulas for combined toning and fixing baths requiring the use of lead in any form may yield satisfactory results, but are not considered to be as safe for the hands of the person using them, and will not give as durable tones as may be desirable.

PROPER HEIGHT FOR THE HORIZON.

BY XANTHUS SMITH,
Philadelphia.

EITHER through a misconception of the proper position for the horizon in a picture, or a desire not to show the sky, most all photographers place their horizons too high when making landscape views.

From one-third to one-half the height of the canvas is considered a good location by painters for the horizon. As a rule, when we ascend, the horizon appears to ascend also, therefore extended prospects from hills or mountain sides admit of a much higher horizon than ordinary views, making the horizon line of the picture proper enough at a point considerably above the centre of the picture. On the other hand, seashore and low country views give us our lowest horizons, because we are little more than our own height above the general level.

A considerable amount of sky gives space and dignity to a landscape, and, although it is true that the photographer has some excuse for curtailing it on account of its being generally a blank space or white patch in his productions, still in the majority of instances the picture carried out in proper proportion in sky space alone would be better than to have the top of the work snubbed and a great depth of meaningless or distracting foreground.

When there is great depth of foreground very skilful management is required to fill it with interest and at the same time not have one passage warring with another. An artist, by a careful arrangement of his materials, can subordinate one passage and give prominence to another; but the photographer who is deprived of the power of rearrangement, if he place his horizon one-half or two-thirds up his picture throws himself open to the difficulty of a meaningless repetition of vacuity, as in fields, sandy shores and streets or roads, or when he has good natural features, to a repetition of one passage over

another, which is destructive of another effective force of the best.

One of the objectionable characteristics of pictures painted now by some of those who study art in Paris is placing the horizon entirely too high, sometimes quite near to the top of the canvas. The result is that all opportunity for the introduction of sky, one of Nature's greatest beauties, is lost—trees even, when represented, are cut off half way up the frame, and we are given in compensation a foot or more at the bottom of the picture of rank green, or ashy-gray, or both, smeared on with childish indifference. It would certainly be better to give us the space above, even with nothing in it, and leave room for the imagination to place a fine cloud effect upon it, than to force upon us these childish daubs of foreground.

Let anyone sufficiently interested hunt up a few engravings from the works of the eminent Dutch painters—Ruysdale, Cuyp, and Vandervelde, for instance—and see where they place their horizons. See how, by choosing a low point and introducing grandly composed masses of clouds, they add to the interest and impressiveness of their works. See what dignity a picture by any of these masters possesses when placed in comparison with the meagre apologies which are now offered us as pictures, in many instances brainless and soulless, possessing not one speck of nature or art, though lauded by the fashionable *dilettanti*. Those Flemings lived in a flat country, where there were no prominent landscape features, and, painting what they saw about them, with the true artistic instinct availed themselves of that

which Nature bestowed upon them in the heavens as a compensation, instead of ignoring it and covering their canvases from top to bottom with inane daubs of marsh grass and dykes and sand dunes.

Let the photographer, instead of placing his horizon near the top of his plate, and easing his conscience with the idea that he has at least covered his plate with something, boldly meet a horizon at the proper height, and if the blank space above annoys him it will perhaps spur him to add cloud effects to his views, using any of the most successful modes of doing so.

If he gives the matter fair consideration he will come, after a while, to feel that his work is so incomplete without some attempt at cloud effects that he will make it a prime effort to secure this important end to the attainment of complete landscape photography.

A SUPERIOR REDUCER.

BY WM. L. SHOEMAKER,
New York.

DURING this year I have handled several large cases of negatives made abroad. The whites of almost all of them were developed until too intense to see through. Most of them were of statuary, and could not be used. "Farmer's solution" would not reduce them far enough without loss of detail in the backgrounds.

Dr. Higgins' reducer is good for reductions that are ordinary, but when a forced reduction is made it leaves the plate bad in color, and it gets worse as it is used. This I know from experience.

At last I hit upon the following reducer; it may not be new, but as I have never seen it in print I think it may be worth recording, as follows:

Sulphate of Copper	25 grains.
Bromide of Potassium	15 "
Water	1 ounce.

Wet the plate and clean the surface with cotton to remove all greasy marks, as the copper will not take any action otherwise on the spots. Use a dish for the solution. Do not keep the plate in until it whitens; take it out, rinse it, and examine it as you proceed. For a slight, general reduction, very little trace of action is needed. After the plate is reduced, wash it and place it in the hypo solution until the color is removed. Now, if you wish a further reduction locally, apply the copper solution with a pad of cotton—rubbing it gently over the part requiring the further reduction.

This reducer leaves the plate of a good printing color, and for lantern slides it is the best I know of. Try it.

THE ELECTRIC LIGHT IN THE STUDIO.

BY FREDERICK J. HARRISON,
New York.

THE successful photographer is he who keeps pace with the times, who is not too skeptical, and who will investigate every innovation and adopt any method that will serve the best interests of his patrons. The possibilities of the electric light as a source of illumination for the studio have long been considered, but only within the last few years has any serious attempt been made to furnish the photographer with a substitute for daylight. In seeking a location, the photographer has but little choice. He desires a clear north light and usually finds it only near the roof. The light thus obtained is of an ever-changing character, his exposures are, perforce, only approximately correct, and, in fact, he is absolutely dependent on an inconstant quantity. With an efficient system of artificial lighting he may choose his location in any desirable thoroughfare, is independent of the sun, and deals with a light of uniform character, absolutely under control. Given a reliable uniform light, the photographer can desire nothing but patronage. Ground-floor studios, with plenty of window space for the display of specimens, replace inaccessible eyries, and this advantage alone is invaluable.

The operator must not think that with the introduction of the electric light his methods will be changed and his experience under the skylight count for naught. The conditions and circumstances are pre-

cisely the same, except that he is relieved of the necessity of relying on an ever-changing light. The transparent skylight is simply replaced by an opaque one, and the sun, or an excellent substitute for it, is brought into the studio. The skylight and sun are both under direct control, may be regulated at will, and, by the aid of the usual screens and reflectors, effects hardly possible under the most favorable conditions with daylight may be produced at any time, day or night. To effect this desirable result, a screen and a proper source of light are necessary. The screen is simply a duplicate of the old skylight mounted on casters, and thus movable. The source of light is a special automatic feed electric arc lamp of proper lighting capacity. The screen is illuminated by the light from the lamp, and the sitter is lighted by reflected light only, all direct light being cut off by an opaque reflector. We have thus a skylight lighted from within. From the studios where this light has been installed we hear nothing but praise, and there seems good reason for the belief that before the end of the century the majority of photographers will have impressed electricity into their service.

ADVERTISING.

BY ROYAL HUBBELL,
Golden, Colorado.

I KNOW that this part of the photographic business is looked upon by some sun-men as the quackery part. Like some doctors and dentists, they deem it

beneath them to come right out and tell people about their wares and what they can do. But, my conscientious brother, let me whisper in your ear. I have been an editor, and I know how these same big doctors will scheme, and even pay big money, to get a local notice of the beautiful job of arm-setting they did for John Mulligan, or the elegant way they extracted Judge Jenkins' wisdom tooth without pain to the tooth or to the doctor.

Now what's the use of all this monkey business? Advertising is not a crime, even if your successful competitor does say so.

It is true that a fine photograph is the best advertisement; but it is not true, these days, that a fine photographer can sit down in his fourth-story cubby-hole and have people flock to him because he is a first-class workman.

No, it is the live man that catches the worms and plums.

Novelties in advertising pay well. One of the best advertisements I ever tried, for a small town, was the free distribution of tickets to children for a ride on a travelling "merry-go-round." Once make the children your friends, and you have secured an agent in nearly every household.

Lively locals in the papers pay very well; but we should avoid perpetrating any chestnuts.

Taking views on special big days and of holiday parades not only pays as advertisements, but often pays in actual sales.

Catchy sign-boards on bridges and fences pay immensely. The writer put up about fifty of these,

which he painted at odd times himself. The majority of them remained in position for over three years, and they all brought in many customers.

As a starter in a town, a free baby day will bring in numerous fine samples, make friends of the mothers, and more than pay in orders that are taken.

But there are advertisements that do not pay. I have seen this kind with allusions to competitors (not flattering ones, either). These degrade the author, cause bad feeling, and avail nothing as business-makers. The handbill advertisement is very poor, unless it is used simply to call attention to some particularly striking specialty.

The photograph mount as a bill-board is a failure. I know of a young man (not married), who called upon a photographer to get pictured. The types were duly finished and posted to him. On the front the advertisement ran something like this:

"G. Bob-up-and-down, { Baby / Photographer. } Lightning Process only. | 1876 Kid St., Chicago."

and on the back was a regular circus advertisement.

"G. Bob-up-and-down takes your baby quick! He beats the world!

"The only photographer on earth using bromo-seltzer plates, which take the eyes in natural colors.

"Bring the baby.

"Remember the place at 1876 Kid St., Chicago.

"Bob-up-and-down loves children."

The young man's friends made so much fun of his baby advertising photos that he felt like consigning

Mr. Bob-up-and-down to a warm place, and did start a fire with some of the photographs.

A man of good taste will put nothing on his mounts except the name and address, with, perhaps, a neat monogram, making the whole not the main thing on the card, but secondary to the portrait.

Advertising by using tickets is a poor scheme. To begin with, it is too old. Then, usually the tickets are sold by some travelling charlatan who tells all manner of tales to make a sale. These tales are swallowed by the customer to the after discomfort of the photographer who issued the tickets.

Advertise. Be original and enterprising in your advertisements; but avoid all sensational and disreputable means.

PHOTOGRAPHING BABIES.

BY R. W. HARRISON,
Selma, Ala.

MANY operators dread the advent under the skylight of the little baby clothed in outrageously lengthy garments. The dress is nearly always to be photograped, because it is an imported garment, or was worn by its great-grandmother, or for some other equally ponderous reason. The resulting picture is, of course, almost always ludicrous, being a little bit of an inane expressionless head above a wilderness of lace and muslin, the monotony of which is scarcely broken by a foreshortened view of two little bits of fists at best; but these are frequently hidden or moved. Meanwhile

the operator is congratulating himself that he has got anything at all, for, notwithstanding his rapid plates and shutter, "the little beggar kept fencing with its fists, and screwing its mouth around, and hiccoughing, until I thought it would drive me crazy."

It probably is not known to photographers in general that, until between the age of three and four months, when a baby cries it does so without tears; neither is there any saliva secreted, and when a baby under that age sits up straight, or nearly so, for more than two or three minutes, it will regurgitate its food, and hiccoughs will set in.

I look out for this. When a little baby comes in I at once insist that the nurse shall keep it on its back until I am ready; then the business part is transacted, and my loaded holders brought out. The necessity for rapid action is explained to the mother, and the high chair is set in place, and the camera adjusted as nearly as possible, and the sisters, cousins, and aunts hunted out, and we are ready for work.

The baby is put into the chair, with its clothes comfortably under it; my lady assistant does this, and with a few deft pulls of the dress, and the use of a couple of small tin clips (no pins) the lace and underskirt are displayed to the mother's heart's content, and the whole monstrosity shortened into the bounds of reasonableness. She has worked so deftly, holding the baby quietly in such shape, that in the meantime I have adjusted the camera, caught the focus, and put up the plate; then she covers her arm, which holds the baby, with the drapery which is over the chair, and I am chirping at the baby for an expression. This

I don't wait long for, but take what I can get on the first plate, and work for better on the second, and I usually get it. The whole operation takes not much longer than it does to tell of it. I do not waste my time with toys or that sort. Usually, chirping does the work; but when the eyes stray off a white handkerchief attracts best; in extreme cases I use a sharp ringing nickel-plated bicycle bell.

Sometimes the nurse or mother is wilful, and declares her baby is able to sit up, etc., and the hiccoughs get started before you are done. In that case a drop of lemon-juice or vinegar on the handle of a silver spoon, touched to the back part of the baby's tongue, will stop the trouble instantly, and a few moments' rest lying on its back will give you a good baby to work on again.

A SIMPLE MODIFICATION OF THE CARBON PROCESS.

BY W. C. GREENOUGH,
New York.

In seeking to reproduce some of my drawings by photographic processes, I was led to try the method suggested by M. Rouillé-Ladevège. The results are so charming and the method is so simple in manipulation that I can cordially recommend it to such of my artist friends or others as may like a matt surface print which can be produced in a variety of colors, as sepia, red chalk, etc. The colors sold for water-color painting in tubes and in a moist state are most suitable, light red, warm sepia, and charcoal gray

being particularly well adapted. Equal portions of a 40 per cent. solution of gum-arabic in water and a 10 per cent solution of bichromate of potash in water are well mixed and filtered, and then sufficient of the tube color to produce the tint desired is thoroughly incorporated into the mixture. Spread the mixture over a smooth textured drawing or writing paper as evenly as may be, using a flat camel's-hair or a badger brush of about one or two inches in width. This should be done by yellow light or ordinary lamp-light. Allow to dry, which will take ten or fifteen minutes in a warm room, and expose in the usual way under an ordinary, not reversed, negative. Place for a moment in a dish of lukewarm water, then withdraw from the dish and place the print face up on a piece of glass and develop by laving with the warm water. If the development does not proceed with sufficient rapidity rub the surface gently with a soft brush or tuft of cotton and plenty of the water until development is complete, when the print may be placed for a few minutes in cold water to soak out the remaining bichromate, and then allowed to dry spontaneously. An exposure of from five minutes upward in the sun and thirty minutes in the shade is usually sufficient. An actinometer is, of course, useful, though not absolutely necessary. Various kinds of papers may be used. Japanese paper gives very beautiful and artistic prints, but a drawing paper of not too rough a texture gives also good results. If the half-tones disappear in development, the exposure has been too short; and if the print develops with difficulty, the exposure has been too long. Hotter water may be used to advantage in the latter case.

SECTION III.

[The articles in this Section are all from parties who obtained prizes for their work at the 1894 conventions, and the engravings are all made from selected prize pictures.—ED.]

PORTRAIT NEGATIVES.

BY J. M. APPLETON,
Dayton, Ohio.

WHATEVER possessed me to promise you a paper on this subject I do not know; but having done so, I shall attempt to fulfil my obligation. Before entering on my task, however, I wish to say that I am not writing for the already informed; neither do I claim as original the ideas I shall advance. I only desire to set them forth in the hope that they may inspire others, who, like myself, are struggling to reach the *higher plane* of photography. Should I be able to do this I shall feel repaid.

Portrait Negatives (not negative portraits) is our theme.

There are negatives and negatives; and some that will always be negative; so much so that nothing positive can be obtained from them but positive failures. But our business now is with such as will make a *picture*; such as not only please friends

and gratify vanity, but also satisfy the demands of art, and show thought and application in their conception and execution. Do not smile, dear reader, if I should call a portrait negative a work of art, or use art terms or expressions in treating of it; for I shall attempt to prove it to be such. Emerson says, "Art is the path of the Creator to His work."

The Path! Is not a photographic portrait, in the production of which there has been exercised a knowledge of the principles and rules of art, and which so beautifully expresses the thought and conception of its maker, a creation? Did it ever exist before? Is it not more than material? And is not the path by which it has been reached an art? And the thing itself, a "work of art"? What more is a painting? *We* use subjects, or models, so does the painter. *We* use outfits and facilities, so does he. *We* fix upon the surface our conceptions and ideas as expressed in our compositions under the light. What more does he?

Pardon this argument, but I wish if possible to show the true character of a photo portrait; or at least what it should, and must come to be, to reach its highest possibilities. And I feel so keenly the necessity of a higher standard for our profession that I cannot refrain. A better value must we place on these things, before photography can be brought to the high place it is destined to hold.

The negative, then, being the foundation for the whole structure, and its making being our topic, I wish you to interpret the terms composition, picture, portrait, or photograph, to mean the negative.

"The camera does not lie." (This is a little dry, but ample time will be given for mastication.) Why then, expect from it what we have never placed before it? Do we desire results? Exercise, then, artistic skill and taste, in composing for the camera.

The proper treatment of our subject must surely be gone through with before calling in the aid of the camera. When the painter creates a work his first care is his composition; afterward the canvas, palette and brush. Let me say, then, and emphatically, too, that the camera, plate, developer, or paper can never produce a picture; it is a creation of the mind; must first be conceived, then composed, by the aid of a model and light, in an intelligent and skilful manner.

Our first requisite, then, is knowledge, *art knowledge* education and training; so that we may know, and see, what composition in pictures means, for without such we shall most certainly fail.

The first thing, then, and very first, is to fill ourselves *full* of artistic ideas, tastes and inspirations, by familiarizing ourselves with artists, their works and methods; by a thorough acquaintance with art composition and pictorial effects. This will require study, and most careful study at that. Begin, then, by studying pictures. I do not mean photographs (except in so far as they come up to the standard), but the works of men who were masters, and are masters to-day, in the art world.

When a picture presents itself to you, and rivets your attention as only a true work of art can, with that subtle power which you feel but cannot explain,

study it, analyze it, resolve it into its separate parts; see what it is composed of, how much of light, how much of shadow, how much of half-tone, or middle tints it contains; what relation the lights and shadows sustain to each other, and what to the middle tints; what position the lights occupy, and what the shadows in the composition; also what produces the harmony and what the relief and breadth.

When done, proceed with other pictures in like manner, and do not give it up until you have these points well fixed in your mind. Then carry your study into nature; noticing, when effects strike you as pleasing or charming, why they are so; what it is that affords the pleasure; and gradually will it begin to dawn on you what pictorial effect is, wherein lies the charm, and what artists' methods are.

Read up! not plates, paper and formula, but works on art; and publications containing such things. Some of the best educators we have are the journals devoted to art illustrations and discussions, and which are accessible to us all. Our *better* photographic journals are endeavoring to lead us along these lines; study them and make demand for more of such food, and they will gladly furnish it. Seek out and form the acquaintance of artists, art critics, and connoisseurs, interest them if possible in your work, and bear graciously their criticisms, and profit by them. You will find them quite wholesome if you desire to advance. Endeavor to interest yourself in what your artist friends are doing, and shortly you will find that you have been imperceptibly drawn into a different atmosphere; you will begin to entertain different

ideas and form different tastes in art matters; will begin to live in a new environment, a new realm of thought, from which will come new suggestions and hints which will be found quite practical in photog-

J. M. Appleton. Dayton, Ohio.
ASPIRATION.

raphy. After doing all this you will find yourself just within the portals of the art world, and ready to begin study and work.

The average photo portrait (so called) but expresses our limited knowledge. It is true, an occasional accident happens, and something is made; but don't

let us flatter ourselves therefore into believing that we are artists. Do we know how it happened? and can we do it again? Picture-making is no sleight-of-hand trick; on the contrary, it requires most careful and diligent work, backed up by all the art-training possible.

Apply now the lessons learned to your daily work, and watch the growth; assimilate this new food; bring yourself into perfect correspondence with your new environment, and watch the evolution of a *photo artist.* Having always been so accustomed to formulas, we must have one, of course, for negative making, so I will try and be more explicit, by offering a few hints in detail. More than this would be confusing, as the circumstances under which we all work are so different.

In composing a picture, then, first study carefully the general characteristics of your subject, color and style of costume. It will suggest to your mind the kind of a composition to make. When you have decided this, begin with the posing. In this, avoiding as far as possible all "catchy" (and sometimes ungainly) attitudes, endeavor to have your subject appear as natural and as much at ease as you can, trying to introduce all the dignity and strength of character they may have, if men, and if ladies or children, let it be grace and beauty. While maintaining a good balance do not neglect to follow lines of beauty and grace, for much of the refinement of your work depends on the posing; see that it is well done. When well done we are ready for the lighting; and by the way a most important step it is; for not

only do likeness and technical results depend on this largely, but also the idealizing of your subject, in which, if you fail, you fail in portraiture.

You will find a movable platform for your sitters a great convenience. Skylight and circumstances being so different, and each sitter requiring its own treatment, definite rules cannot be given here. It is well to avoid violent or strong contrasts, especially in the illumination of the face. Be careful to not emphasize in lighting the objectionable features of the face, but rather make them subservient by pronouncing the more comely ones. Of course, this treatment may be a little difficult to carry out, but by practice it will come, and will help you to find some beauty in almost every face. The same rule applies to the whole subject, be it bust or figure, in that it helps you to maintain one point of interest in your picture, and allows all others to become secondary; knowing this, that a composition having too many points of interest, will for that reason become itself uninteresting, for the eye is continually attracted from one point to another, and soon tires of the whole.

The possibilities of this method of lighting are great, and such as the painter never fails to adopt. He can only paint what he sees, and produces under his light. So the effects you so much admire in his work are but the results of careful modeling under the light. The best method of producing these results in your own studio you will have to work out for yourself. A few hints on composition are now in place.

Aim to have one prominent light in your picture;

ordinarily it should be the face; but do not always insist on having it so to the sacrifice of pictorial effect. Two, and sometimes three more lights may be admitted, but should be smaller and not so strong as the main one. These lights will need harmonizing with the blacks in your picture; it can be done by the introduction of middle tints, as may be found in the draperies sometimes, or can be also supplied by the background. By the massing of lights together, and also of darks together, the broadest effects can be obtained. But for the sake of relief and harmony at one or two points the dark and light should be brought into contact by carrying over the light into the dark, or *vice versa.*

We have come now to what is by far the most important part of picture making, viz., the introduction of the background; for without a proper one to sustain you your work will fall flat. This requires so much masterly care and skill, that I do not feel equal to the writing of it. Know this: that when you have mastered the background you have the art. Right here is where your study and preparation must serve you, for no one can tell you.

The background must be the complement to your subject, and you must be able to see its needs and supply its demands. The more you study it the more you will find it the busiest factor in the whole composition.

At one point your subject will want relief; the background must furnish it. At another a harsh line wants softening; it must do this. The strong lights and shadows want harmonizing; again we call

on the background. It must give value to the flesh-tones, determine the strength of your light; the breadth, relief, and harmony are all dependent on it.

Must I then have one for every subject? Yes, and no! A good variety must be had of different depths of tone, and well graded, and broken up into masses of dark, light, and middle tint; so that you can introduce them in any shape or form your taste and judgment may dictate. Now work it out as you would any formula. Before closing I must emphasize the one point we must have indelibly fixed in our minds, viz., our picture *must be made under the light, not* in the laboratory or print-room. With these suggestions and hints let us now compose a picture, a portrait. When ready, bring in the camera and plate, expose properly, and with the skill we already have, develop so as to give the best values, and we cannot fail to have a beautiful, artistic, and well-rendered negative, from which may be printed a portrait, well worthy to be called "a work of art."

GENRE PHOTOGRAPHY.

BY S. L. STEIN,
Milwaukee and Chicago.

My practical experience with this imitative art, illustrating everyday life, has taught me that perhaps the chief care must be used in the selection of the models. They must be able to understand what you intend to convey in the picture, and know the

story so thoroughly and understandingly that they can put themselves in an easy and natural way into

S. L. Stein, Chicago and Milwaukee.

THOUGHTS OF LOVE.
(Copyrighted, 1894.)

the characters they are to personate. The theme and models chosen, harmony in composition should

have attention. Careful thought, study and taste must appear in the surroundings; the lighting, posing, and accessories must be full of feeling and in sympathy with the theme. In posing the subjects and in the arrangement of drapery, good judgment is essential to success and should be used at every move, as almost everything desired in the shape of sensitive plates, as lenses, accessories, etc., is easily obtainable.

Take a day off now and then from the regular rut of portraiture and experiment in *genre* work. It is certainly very interesting; it helps to educate the eye for the artistic; it gives you splendid specimens for exhibition purposes; and last, but not least, is remunerative when properly published.

ON THE INTRODUCTION OF FIGURES INTO LANDSCAPES.

BY F. B. McCRARY,
Knoxville, Tenn.

THIS is a subject that should receive the thoughtful attention of photographers throughout the country.

Heretofore little or nothing has been accomplished in this particular line, so that the entire question exists in a very crude form.

To the majority of the profession the real meaning of the term is even clouded with uncertainty. This fact is painfully evident when we scan the usual

productions which make their appearance annually. I am in favor of a special course of study, with competitive examinations, to be inaugurated at once in this legitimate and beautiful branch of the photographer's art.

So far as I am aware no photographer has yet produced a landscape with figures that has commanded any widespread attention. The very best work has had only a local reputation, and that, too, of only short duration.

Why is this so? Is it impossible to produce with the camera a picture of this class that will command the admiration of the world? "The Angelus," by Millais, is a simple landscape with two lone figures. Is it impossible to approach the high standard of this picture in real life with the camera? Wherein lies its great power?

That nothing of a high order has been accomplished in this department of our art argues that something is radically wrong.

Of course, photographic art can never hope to rival the marvellous power of the painter's creations, for in photography there is so much of the mechanical; yet certainly a few can approach a higher order of genius with proper study, discernment and ambition.

What then is wrong? Misconception of the subject together with inattention to the real details, and also lack of rules to govern, must be at the bottom of the trouble.

It is well-known that the chief use of the landscape, heretofore, either as canvas under the skylight or nature in the open air, has been to fill in a vague

something behind the subject. The reader may recall many instances of this fact, the mere recollection of which cannot fail to provoke a smile.

What kind of a picture do we mean when we speak of landscape with figures introduced?

McCrary & Branson. Knoxville, Tenn.

BY THE SIDE OF THE RIVER.

Our idea is that it is a picture in which both landscape and figure are equally component parts, the one lending strength to the other, both existing in perfect harmony, constituting a complete whole.

The term, therefore, has a restricted sense and not the general one in which the idea is conveyed that the figure is the subject and the landscape an accessory, or *vice versa.*

In a short article like this little more than mere

hints at the several parts of this most comprehensive subject can be given.

Discussions extending into chapters could be easily written on what kind of landscape will give the best results; what figures may be introduced and what may not; the harmony of different subjects; the attitudes of the figures, etc. These can be better treated one at a time.

We must enter our protest, however, against the idea that prevails with some photographers that it is a proper thing to introduce insignificant or commonplace subjects as figures in a landscape.

This is a grave error.

The majesty of the eternal hills always commands respect. We believe that dignity of a certain kind should invariably predominate in a work of art.

We could not expect that a subject such as a dog jumping a stile, a cow standing in an old fence corner, a sheep with its head only in the shade of a tree, or horses drawing a vehicle at full speed, introduced as the foreground of a landscape, out of harmony, could ever be regarded as a work of art.

In the use of figures in a landscape improbable or impossible poses should be avoided. Always stay close to the natural order of things.

The variety of possible subjects is so great that the main effort should be in selecting those that fully harmonize.

If an attempt is made with the picture to delineate character, epitomize a story or indulge in a bit of romance, the selection of landscape and figure must be extremely pertinent.

The position of the figure is very important. Not only must your point of view for the landscape and the figure be the most advantageous that can be selected, but it must embody a position from which the landscape does not mar your figure nor the figure mar your landscape. The figure must seem to be a part of the landscape.

In this particular work the model must never appear as posing for his picture. The least indication of this consciousness will mar if not destroy the whole effect.

In the works of many of the old master-painters will be found the highest instructions for photographers. They were wont to paint with their subjects a bit of landscape which was so placed that the figures would seem lost without it.

As to posing several figures in a landscape, reference is made to the engraving which accompanies this article. It speaks for itself more eloquently than can the language of words.

We hope the brethren of the camera will give due heed to this subject and that at the next meeting of the P. A. of A. at Detroit there will be a display that will awaken an ardor for work of this class such as the profession has never known before.

ON FIRST IMPRESSIONS.

BY P. H. ROSE,
Providence, R. I.

If I would counsel you, my fellow-workers, to observe one thing more than another, it would be to

so arrange the various rooms of your establishment as to make a good, cheerful impression upon your patrons immediately they open your outer door. A great many people are heard to utter that pleasant sarcasm upon having a photograph made that they "would far rather go to a dentist;" but that is a sarcasm and not a truism; for the real fact is that the majority of people approach the photographic studio with hilarity and pleasure, because the results they expect are intended to stimulate their vanity and to give pleasure to their friends. This being true, then, it becomes the duty and the *interest* of the photographer to receive his patrons in the spirit in which they come, and to do all in his power to promote and hold that spirit until the negative is made, not only, but until the finished pictures are delivered and are carried from you with smiles and satisfaction.

People are, in a sense, like negatives, and turn out very much as you develop them. When you make a quick exposure you know very well that if you toss on the developing solution carelessly and of too great strength you will depress all the life out of your film, and secure but a weak and sorry result, if any at all. People may become depressed by your treatment of them in a similar way, and reward your efforts with only poor results.

Now all this leads me to the thought with which I started, *i. e.*, to the arrangement and care of the different apartments of your establishment. If a person comes to you for a picture in the hopeful mood to which I have alluded, and the door-knob drops into his hand as he tries to enter, and the walls

of the reception-room reverberate when he enters for want of fresh-looking and modern specimens hanging upon them, and the attendant who meets him is pert and unsympathetic, and the photographer who is

P. H. Rose. Providence.

DAY DREAMS.

called to consult with him comes in slovenly attire and with cynical face, and the studio itself is unclean and the accessories insufficient for a choice, the whole appearance of things being uncosy and uncanny, and a dozen other matters conspire to form a mental

developer which will force all the snap and cheerfulness out of him, have you any right to kick yourself because you do not obtain a satisfactory portrait?

My friends, there is a great deal in impressions, and the most of all in *first* impressions. Do not put *all* your art in your studio. Diffuse some of it among the other apartments; brush up the environments.

All of us remember daily, in our work, the helpful essays of John Burnet. We owe him much. He was a very talented man and a very smart man. Yet, after all, he had his faults. We know very little about his private character, but what little we know does not encourage us to admire him so much as we do what he has left us as the legacy of his pen to help us in our work. So curious were his idiosyncrasies of character that a contemporary poet once wrote of him as follows:

> "Prompt to assail, and careless of defence,
> Invulnerable in his impudence.
> He dares the world, and, eager of a name,
> He thrusts about and *justles into fame.*
> So fond of loud report that, not to miss
> Of being known (his last and utmost bliss)
> *He rather would be known for what he is.*"

"Just like an 1894 photographer," some of those who have been snubbed in photographic establishments may rightly say. My friends, in these days of competition we cannot afford to act so independently, nor can we "justle into fame."

I leave you with this concluding thought—and the title of my paper. Put them together, and see if you cannot make things pay you better.

HOW TO POSE THE SITTER.

BY E. B. CORE,
Cincinnati, Ohio.

"To understand and well to pose
That oblique eye or frightful nose
Their own defects shall not disclose"

Is a problem in the solving of which you will always be able to measure your bank account, and we can most of us give the value of an expression in dollars and cents. Of course, I refer to my professional brethren.

It is a notable fact that we are much hampered as far as really artistic productions are concerned in the expectation, nay, the command, that we are to make "every man the peer of every other man," though, as an artist friend expressed it "his chief charm was his ugliness." We are expected to give him an "Ajax defying the lightning" sort of bearing, with an expression that would make the reputation of a native of the Cannibal Islands for amiability. Happily we once in a while find an exception which, while it proves the rule, affords us an opportunity to practise precepts which we love to honor.

The children are certainly the oasis in the desert of making "pot boilers." With them we are at liberty to use all the fertility of our resources. Sometimes an over-anxious mamma thwarts us, and insists on having baby photographed as she had hers made when she was a baby. But in the main I find the mammas are willing to give you full rope, and will

both bless you for your patience and pay you for your pains.

A bountiful supply of toys rarely fails to elicit an awakening response from the children. I have often lined them into position with a bounding ball, a doll or a toy gun. With children of the younger as well as those of the older growth it is well to consider what would likely interest them if they were left to their own enjoyment. You might say:

"To spin a top, or dress a doll:
To roll a hoop, or knock a ball;
To weave a wreath for baby's darling little head,
Or now my nighty's on I'm ready for my bed.
I greet you now 'Good Morning' with many a tumbled curl,
Wouldn't you like a rosebud from papa's little girl?
I'se been out in the garden and got this flower-pot;
Don't you tink it is a big one for such a little tot?"

But why go on multiplying suggestions, lines, and hints? I might even give gold, but you would have to furnish mints.

As brevity is the soul of wit, so should we study simplicity in composition. The old style of photography where any great attempt was made at composition was very apt to impress one as the representation of a dealer in second-hand bric-a-brac surrounded by his stock in trade. Many of the later day productions, while not erring in this direction, evince a strong predilection for what we might call the "fin-de-siecle" in posing.

Miss Jane Johnson is very much to be admired as she bows on greeting your entrance to her reception, but to spend an evening or a month with Miss Johnson in one fixed, everlasting, interminable bow,

to say the least, would be rather monotonous. How much better if she were in some simple position of rest, surrounded by just such things as she would be likely to have corresponding to the costume she

E. B. Core. Cincinnati, Ohio.

IS YOU DOT TANY?

wears (not too many of them); making her face and figure the objects of the picture—the rest merely accessory. Every time we look at such a picture we experience a renewed pleasure, and we are never

tired by a vain effort to straighten her up out of what we know must be a very uncomfortable attitude.

The study of Delsarte is of inestimable value to a photographic operator. It teaches him to walk gracefully, to stand properly and to sit elegantly. It will also teach him to express feeling and emotions with the hands. There is very much to be observed in this latter particular. If you want a strong test take your handkerchief up between the tips of the thumb and fore-finger; then take it with the tips of the thumb and middle finger; in the latter case it will be as the dainty thing you had picked from the floor where your sweetheart had dropped it the moment before; in the former it will be the soiled dust-rag which Bridget thoughtlessly left lying on your Sunday paper.

A miser would never allow you to see his wealth between his extended fingers, nor would the philanthropist give alms out of a tightly clenched fist. Strength is not indicated with relaxed muscles and delicately curving outlines, but by firmly set muscles and well-pronounced knuckles.

I find that even the position of the feet has an effect on the head and shoulders when the subject is seated and you only intend showing the bust.

The management of the drapery can also carry out the expression in the picture. With a sweep of the folds of the dress we can express that the subject is walking or turning, attentively listening to that very interesting adventure you were just relating.

Break any large patches of light with folds. As, for instance, the train of the dress becomes the

principal object, if spread out flat; or, lying on the floor, it will photograph the whitest object of all.

Never allow the subject to stand on both feet; only soldiers do that, and not they when they are at (parade) rest.

THE CHRIST-HEADS.

BY H. W. MINNS,
New London, Ohio.

We must expect that any innovation that photography makes upon the world of art will meet with adverse criticism; therefore, I am not surprised at the charge of "sacrilege," and even "blasphemy," that has been made against this work by a few persons who have given my pictures but a passing glance. But, as our fellow-worker, J. F. Ryder, has said of the heads: "The opposition is the highest tribute to the work that could be paid." I can assure the critics that their assistance is appreciated.

To my subject, Mr. E. E. Masterman, is due my thanks for whatever success has attended my efforts.

He lent himself entirely to the work with all the intensity of an intelligent mind and a sympathetic soul. I had also the benefit of an intimate acquaintance with him. He has been described by the reporters for newspapers as "tall and awkward." His movements are anything but awkward. He has a commanding figure and majestic mien. Some objections have been raised to the beard and hair of the subject, compared to the paintings by the masters.

I object to the *woman-face* and carefully-curled hair that most of the pictures of Christ possess. As I replied to one critic: "It would seem that He gave

H. W. Minns. New London.

"FATHER, FORGIVE THEM."

more attention to curling His hair than to curing the sick."

I respectfully refer my critics to the pen-picture of N. P. Willis in "The Leper," as Helon saw Him by the desert pool. The most magnificent description, to my mind, that words have made. If I could make

a picture to compare with it I would hope for recognition as an artist.

However, the greatest success I hoped to achieve by the photographs was in *expression*. I hoped that our

H. W. Minns. New London.

"ELOI! ELOI!"

trusted "photographic eye," the lens, and a sunbeam, might secure that evanescent *something* that eludes the brush of the painter and gives the sparkle of life, of reality, to the great drama. The cry of "sacrilege" is the best evidence that I have partly succeeded.

Those who have gazed unmoved upon ideal paintings of the Christ have been moved and surprised before these photographs.

"The '*Father, forgive them*,' '*Eloi, Eloi*,' and '*It is finished*,' seem to come from the silent lips of the

H. W. Minns. New London.

"IT IS FINISHED."

pictured Sufferer," was the comment of a noted college professor as he studied the pictures. I submit them all to the examination and study of my fellow-workmen. Dear MOSAICS, I love the beautiful and the sublime, and I hope to produce better things as I

learn more of our *art*, believing that the tools shall not condemn the work.

If a bit of glass and a sunbeam
Make pictures that touch the heart,
Shall the product of brush and chisel
Be the *only* works of art?

HOW DO YOU DO IT?

BY W. M. MORRISON,
Chicago.

It would give me a great deal of pleasure if I could tell my fellow-photographers—or even show them—how I manage my models under the skylight, but it is quite impossible. No two cases are to be treated alike; hence no arbitrary rule can be laid down. What I *try* to do is to make the best I can of everybody whose pictorial fate falls under my hands; and I never know what I can do until I try. I confess that there are occasions when I am much puzzled—when a model is presented in whom, at first, I can see nothing to encourage me to make a trial. But I go at such and all others with more or less earnestness, pretty much as you would if you were about to hire a helper, *i. e.*, I ask them to show me what there is in them. Not in so many words, of course, but in my own way. I will demonstrate: If a pretty, slender, graceful young woman with an impulsive nature comes in, while pretending to get ready for her I hand her a bouquet, or a parasol, or a

fan (according to circumstances), and then I watch her and see what she will do with it. Or I engage her in conversation, or, it may be, propose to her to "sit down a moment," when I likewise watch her

W. M. Morrison. Chicago.

UNMASKED.

closely to see how much help and what, I may get from her toward securing grace and naturalness in her picture. Perhaps I may ask her to arrange herself "naturally," or to swing around the room once or

twice, or it may be of a hundred other things that I may request, all to see what suggestions will come to me as the pantomime goes on. And as it goes on I think and plan and reject or accept what comes to my mind, and then arrange to make the negative. The hands, the face, the figure, the drapery must all be considered. The naturalist acquires his knowledge by observation. So must the photographer; I caught this idea once upon a time when reading Mr. Lowell's charming essay, *My Garden Acquaintance*. He had never had experience with a nightingale, and so he writes: "The only bird I have ever heard sing in the night is the chip bird. I should say he sang about as often in the darkness as cocks crow. One can hardly help fancying that he sings in his dreams."

Now here is the point. As there is sweetness in the song of some of the commonest of birds, and in that of one of the least attractive, so there is beauty and grace, and even sweetness, to be found in some of the plainest-looking women. As one poet sang of the "chip bird" so may we fancy as to the members of the gentler sex:

> "Father of light, what genuine seed,
> What glance of day hast thou confined
> Into this bird? To all the breed
> This busie ray thou hast assigned;
> Their magnetism works all night;
> And dreams of Paradise and light."

That is, of course, if you are a practical observer and can see and feel. If you are, then, finding a congenial spirit in you, art will come to your aid whenever you are in need, in ways I cannot demonstrate, in ways you do not expect. Do I make it clear?

One more suggestion, and I will snap the shutter: Reading is a great help to the imagination and invention. I will illustrate this by a quotation from Leigh Hunt's essay: *On the Borders of Poetry.*

"They say that I speak too highly of what I admire, and that half the beauties which I discern in any object I put there myself. Believe them not; Nature has been before us. We only read what she has written. If others cannot read as much, is that the fault of books? No; it is their own. Look at one of the simplest and the most beautiful objects in the world, a cheek; and tell us, how came it? What a thought was the cheek itself, when Nature created it! And do you suppose that a vulgar eye estimates it enough? Put the question to those who can do something like it themselves; to Raphael, or to the poets. As the poet's thought is worth what it produces, so the cheek of beauty is worth what it suggests." And that is the whole of it. Catch the suggestions?

HOW TO MAKE AN ARTISTIC DISPLAY.

BY JAMES ARTHUR (ARTHUR & PHILBRIC),
Detroit, Mich.

HARMONY in effect is the first thing to be sought, and should always be considered, between the mounting and framing of photographs.

Each picture must be studied individually as to what kind of frame would be most becoming and

attractive and still be in harmony with the rest of the pictures in the same display, to produce an effect pleasing to the eye.

For instance, a deep-toned print on matt-surface paper, placed in a narrow dead-gold frame, with a few delicate ribbon scrolls in burnished gold to relieve it, gives a very rich result. Or the pink-tinted paper on polished surface, framed in a narrow green bronze, with just enough gold burnish to relieve the dull effect of the matt bronze, is also very pleasing.

A showy frame should not be used in any case, as it always detracts from the picture. Whatever is used, let it be for the purpose of bringing out and enhancing the best points of the picture, while not attracting attention to itself and making the picture a secondary consideration. Always keep in mind that the photographs ought to be the main feature in a photographic exhibit.

In making a display remember that those pictures suggesting action or repose, according to the subject, are by far the most attractive to photographers and the general public.

The title of the subject should be in neat letters underneath the print, if the subject will admit of a title. This will cause more interest in a display, as a title suggests a great deal in connection with a picture. It gives food for thought to most people who have an interest in art, and at the same time impresses the picture on their mind, whereas without a title it might receive a glance only.

A framed display should be hung on a dark ground, not to obtrude itself on the attention. In displaying

a collection of sepia tones framed in gold, a dark brown, or a very dark wine-color as a background,

Arthur & Philbric, Detroit.

FAITH.

gives a beautiful relief. The frames should be of varied size and shape. By using ovals, circles and

squares a most desirable result can be obtained. In hanging display frames much judgment and care must be used to produce an effect well balanced and artistically arranged.

Much thought and care as well as hard work and considerable expense are needed to make an artistic photographic display. But it well repays, not only financially but in the satisfaction and knowledge obtained through well-expended effort. Careful observation, and the habit of studying shape and color and contrast in everything you see, will all help in displaying photographs to their best advantage and to that of their makers.

BUSINESS CONNECTED WITH PHOTOGRAPHY.

BY H. L. OLSON,
Montevideo, Minn.

ANYONE who has taken an observation of the way in which the business part of photography is conducted by the average photographer must naturally have arrived at the conclusion that slipshod, unbusinesslike methods prevail to a great extent. The condition of our craftsmen testifies to the truth of this assertion.

I would like to call attention to some of the errors into which photographers are apt to fall. To begin at the beginning, let me say a few words about

Apprenticeship. Photographers, for the sake of

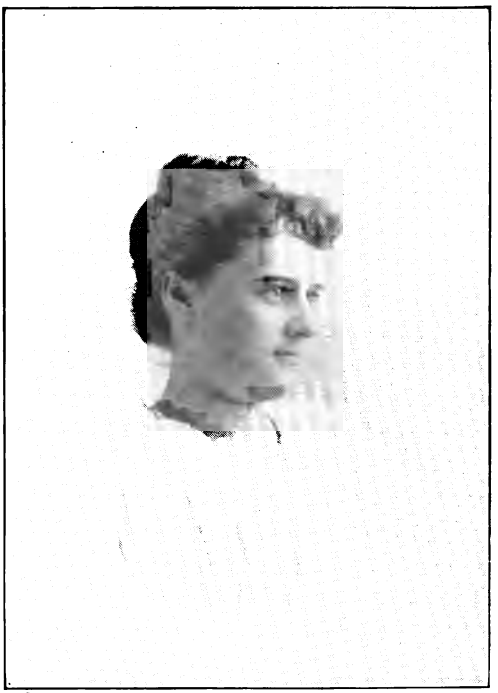
obtaining a few dollars for tuition fee, encourage too many persons unfit by nature to enter the profession. Such persons, being void of business sagacity or calculation, will "pop up" at the next station as your competitor, and, while they are doing neither themselves nor the community any good, they are in all probability doing you and the profession in general some harm.

Location does not seem to receive much consideration by many beginners. In the North-west, at least, photographers are to be found at almost every railroad station where a few hundred inhabitants exist. They eke out a miserable existence for awhile, get into debt, and move on.

Young man, study your location and prospects thoroughly, and consult older heads in the profession, before you invest your little all in the photographic business. It takes a fair-sized town, with good tributary country, to support one good gallery decently.

If, after due deliberation, you have started, go in to win, not by cutting prices or by giving fourteen to eighteen photographs for a dozen. The latter is one of the most abominable methods, even more so than the former, as it tends to teach your customers that it does not cost anything to produce pictures. Never throw in extra pictures. If your customer orders a dozen, give him twelve, and under no circumstances let him coax you to give him thirteen. By being strict in this you educate him to understand that it costs something to produce photographs, and you leave some room for future orders, which, perhaps, one or two extra ones would fill, without

any remuneration to you. You may take my word for it, he will be just as good a friend. Be sure, however, that there are twelve faultless pictures, or, at least, as nearly perfect as you can make them, and then rest assured that with your name on, each one



H. L. Olson. Montevideo, Minn.
CONTENT.

of them will go out and win new customers for you. Many photographers are in the habit of throwing in blemished prints, extra. The foolishness of this ought to suggest itself to any thinking person. By

all means burn all failures, and peace be with their ashes.

Payment. I believe this problem has caused photographers, especially in the smaller towns, many gray hairs. Hundreds and thousands of dollars are lost every year through undelivered work, where parties are not strict in demanding a cash deposit before a sitting is allowed

It is somewhat difficult to enforce this rule in the smaller towns; but unless you do, you are sure to be a loser. You may make one or more negatives, submit proofs, and perhaps hear nothing more about the matter. You will be treated this way even by the very elite. By the way, do not let this class get off too easily. Send in a good large bill for the sittings, and make them understand that you are not to be trifled with in this way. A liberal discount, say, ten to fifteen per cent. allowed upon advance payment in full, facilitates matters nicely.

Proofs. No man whose time is worth anything can afford to make retouched and finished proofs. Nor is it necessary. But if proofs are to be sent out of the gallery they should be accompanied by printed explanations setting forth what changes will or may be made. This will prevent many unnecessary re-sittings. Let this printing be done on an opaque, two-leaved folder, cabinet size, and enclose the proof therein.

Accounts. Keep account of your receipts and disbursements, and take a yearly inventory of your stock and property. If it ever occurs to you to cut prices, consult your books first and find out if your

profits have been too great. You need hardly expect that a reduction of prices will swell your business to such an extent as to reap more profit that way. Very few who have tried this experiment have found this to be the case.

Perhaps you will say, "I know all this." Very well, it is presumed that you do. But there are a number who appear to have forgotten it. Hence this gentle reminder.

SOLAR NEGATIVES.

BY E. LONG,
Quincy, Ill.

I BELIEVE every solar printing house uses wet plates instead of dry for its negatives, because they print so much more quickly, give more of the quality called "snap" in the prints, develop more quickly, can be dried for use in a few minutes, and cost less to make. All excellent reasons.

The making of wet-plate negatives is to many a "lost art" and requires greater care and watchfulness than making them on dry-plates. They must be made with a weak developer of iron, acetic acid, and water, with a little alcohol added to make it flow smoothly on the plate, and developed only about half as far as for contact prints. They are best cleaned with cyanide of potassium, and must be well washed. Should they be a little too thin they can be flowed with sulphuret of potassium in solution; again

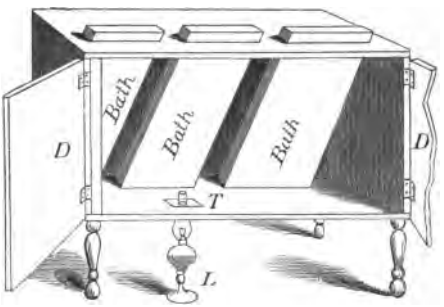
washed, and dried in the sun, which adds to their density. They should not be varnished (unless to be retouched), as they print nicer without varnish.

In copying photographs a reflected light should be used to balance the direct light, giving smoother effect than direct light alone.

THE VETERAN PHOTOGRAPHER, E. LONG.

The silver bath for solar negatives should be kept at an even temperature the year round, as nearly as possible, as it works far better and lasts much longer. An admirable device for this purpose is found on page 47 of that very valuable work, *Wilson's Cyclo-*

pædic Photography. It is called a bath warmer, and may be used as well for a bath cooler in hot weather. This is one of the inventions born of necessity; made while photographing in Benton Barracks, St. Louis, during the war, and when it was so cold the bath would chill every night, the gallery being a board shanty.



LONG'S BATH WARMER.

The bath should be much larger than the size of the plate used would seem to require, as a large bath keeps in order much longer in proportion to its size than a small one does. It is best at the close of each day's work to add to the bath as much silver solution as has been used out during the day, and this should be plain silver (not iodized). It keeps up the strength of the bath and prevents it from becoming over-iodized, and prevents pin holes.

Solar negatives are seldom kept any length of time, as duplicates are not often called for. We keep ours about a month, then put them in concentrated lye, let them soak a few days, then clean them off, and albumenize the glass for new work.

TIPS UNDER THE SKYLIGHT.

BY C. O. TOWLES,
Frostburg, Md.

In the production of photographs there is no part of a photograph "shop" so important as the room under the skylight, namely, the operating-room. It is upon the work done there that the success of the picture largely depends. It should be as pleasantly accoutred as it can be made; a pretty picture being hung here and there, a few potted plants, a sweet-singing bird to add to its cheerfulness, all tend to make it a place animating and pleasant to the customer.

Too often, instead, the photographer pays too much attention to his reception-room to the detriment of his operating-room, ofttimes justly calling forth an unnatural expression of a sitter by its bareness.

One point should always be kept in view: to make the customers feel, from their entrance into the office until you bid them good-day, that they are among interested friends; then, by every little courtesy that evidences good taste, arouse and animate that which is artistic within.

Then, when ushered into the operating-room, if the operator is diplomatic, which he should be, it is easy for him to draw out the very best expression to aid him in his productions. Having gotten here, we will again return to the subject of this article—"Tips Under the Skylight." Every operator, be he ever so

unassuming, discovers in his own individuality some way of doing this or that (which I will call tips) that may be of general benefit if they were known.

C. O. Towles Frostburg, Md.

THE ENCHANTRESS.

There are but few men who use the same methods of posing and lighting. Perhaps it is best so, as the individuality would be less marked that so quickly locates the productions of our master workers.

We cannot all be a Sarony or a Strauss, but by a liberal exchange of ideas we can all promote and

uplift our beloved art, and by so doing add many dollars to our ofttimes depleted exchequer.

As a young man under the skylight, I have not the great stock of ideas that many of our fraternity have, but offer this in the hope that it may help some one.

As a first tip under the skylight, see that your light is properly curtained and easily controlled, so that any effect of light can be speedily thrown on the sitter's face.

I work out well under my light, so as to have a broad diffusion of light all around my sitter; if a bust picture is to be made I can soften at most any point with a head-screen; thus I secure a round, well-balanced image. Now, that I have my subject posed, presupposing that I have selected the best position and lighting to suit the face, the next and most important part of the work is to secure proper expression. How will I do this? Here the artist's tact is called upon; nine out of twelve pictures are ruined by faulty expression. I have an eye-rest, on one side of which is a picture of a dashy fellow, on the other a pretty girl, and by calling attention to this, according to the sex of the sitter, it will at once animate the face. Watch it as it relaxes; when it suits you, make your exposure, and in most cases it will be a success. With older people a running conversation will keep them interested; ofttimes a request to not press the lips too tightly will cause them to moisten them, and thereby give you what you want—natural expression. Possibly the most difficult subjects to get a good expression of the eyes from are those with large staring eyes and those with defective lids that gradually fall

and cover part of the eyes. A little ruse I employ in cases of this kind is one which works in every case. That is, get everything in readiness for the exposure, then place an eye-rest where I want them to look; then have the sitter close both eyes for a few seconds, directing them before to open when I say so and look where I have instructed. Just as they open them I make the exposure. If it is a case of a drooping lid you get it before it has time to settle down; if a staring eye confronts you you have animation instead of a stare. This little tip needs only to be tried to be appreciated.

THE BUSINESS END OF PORTRAITURE.

BY J. W. BURKHOLDER,
Mt. Vernon, Ohio.

THE day has come when business, photographic, and artistic talent must room together. The time when "settin' 'em down an' shootin' 'em" will do, is past. Do not look back for light on the subject of success; you'll not find advanced ideas of interest there.

We all know that all processes are constantly and rapidly superseded by new ones. We must adopt new rules. We must "lay" for the latest, and always select the best. We must likewise use our best judgment in connection with them, and do business in a business way. We must be systematic or we need not expect to be successful. Let us observe the differ-

ent methods adopted by photographers in posing, lighting, retouching, and hundreds of effects—both artistic and inartistic. In their business views they differ just as widely and as much. Let us analyze a

J. W. Burkholder, Mt. Vernon, Ohio.
THE MANDOLIN PLAYER.

successful photographer. He must be a chemist or he cannot be a photographer. Now let us see whether he is an artist. Yes, he is, because he makes artistic pictures; otherwise he could not be a successful photographer.

Now we will see whether he is a business man. He certainly is, because he is successful. This is demonstration enough, is it not?

Now, let us all use lots of good judgment in the excellence of our work, and place the standard of photography on a level with the demands of the artistic and best photographic productions of to-day without slighting the business side of the subject. Then we may show to the world that photographers can not only be artists and business men, but that they can and do possess these capabilities combined, and that the composite produces a pleasant and profitable person to deal with.

HINTS ON INTERIOR PHOTOGRAPHY.

BY GEORGE W. LEAS,
Peru, Ind.

JUDGING from my experience, the items of chief importance in photographing interiors are the lens and plates used. Without a suitable lens, and a plate in some way prepared to avoid halation, a pleasing interior view can hardly be gained.

The lens should be of the wide-angle type. In my recent practice I have used the Series V, Zeiss lens, made by Bausch & Lomb, and I cannot speak too highly of the work which this lens gives with intelligent handling. My usual plan is to focus my interior with largest stop, and then insert *f*/32 before exposure, which gives me depth and sharpness to

the extreme edges. One special advantage possessed by these Zeiss lenses is that there is no variation of focus with variation of diaphragm. A reliable way is, focus an object in the distance and in the centre of the plate. Another advantage is the rapidity of these lenses, due, no doubt, to their construction and the character of the glass of which they are made.

G. W. Leas, Peru, Ind.

AN INTERIOR.

The camera should have a swing-back sliding front, and a double camera level. The plumb indicator, made by Thornton-Pickard Co., is a capital helper in keeping the plate vertical. My ground-glass is marked with an x in the centre, and I have a wooden diaphragm which is fitted just in front of the ground-glass inside the camera, with an opening showing the

exact size of the plate in use. This device does away with guesswork as to what will appear in the picture, and gives certainty as to results. If the camera is fitted with a conical bellows, it is best to use a box one size larger than the plate employed. When possible, I use a good, strong tripod, and try to get my lens about the height of one's eyes. Where a tripod cannot be used I adopt anything I can find which meets the difficulty; and oftentimes, when a verandah surrounds the house where I am working, I take my view of a room from the outside, keeping the lens just even with the inside walls of the room. As far as can be, I think it is better to avoid directly facing the windows of a room. Where this must be done the light should be very much softened, or, better still, the window or windows should be completely darkened with black cloth during a large portion of the exposure, and only exposed open for a few seconds before the cap is replaced on the lens. For such occasions a non-halation plate is a necessity. In my prize work I have used Seed's non-halation plate with great satisfaction. Pyro and sal soda is my favorite developer, and I believe it is possible to get any desired result by its use. For all-around work it surpasses any of its later competitors, though these may be useful for special cases. For general architectural work I like as long a focus lens as is possible, say twelve to sixteen inches. Among the Zeiss objectives series 3 or 3*a* are to be recommended. As a matter of course, any good rectilinear lens is adapted for this work. A bright cloudy day has always helped me more than strong

sunlight, giving effective negatives. Where a house has deep verandahs negatives taken on such a day will show much more detail in the shadows than those taken with sunlight.

It goes without saying, that in architectural as well as in interior work, the camera should have side and vertical swing attachments, with sliding front and levels. A good focussing attachment is useful at times. With these essentials given attention before beginning work you will get pictures with pleasing light and shade effects and harmonious lines.

ABOUT COPYRIGHT.

BY J. LEW ROMBACH,
Cincinnati, O.

I HAVE selected a subject that I think will interest most of the photographers in the country. You can see the copyright law violated in any art window where there are photographs exhibited; you will see photographs marked "Copyright applied for," or "Copyrighted," or "Copyright by Mr. Brown, Cincinnati, Ohio," or "Entered according to the act of Congress by Mr. Brown, Cincinnati, Ohio."

These are all wrong, and will not hold good in any court. The only way to be safe is to mark the photograph, say, Copyright, 1894, by Rombach & Groene. This is what is termed the short form. The long form is as follows: Entered according to act of Con-

gress in the year 1894 by Rombach & Groene in the office of the Librarian of Congress at Washington.

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"This must be done before publication of the photograph. The printed title must be printed expressly for copyright entry, with name of claimant for copyright. The style of type is immaterial, and the print of a typewriter will be accepted. But a separate title is required for each entry, and each title must be printed on paper as large as commercial note.

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The postage must be prepaid, or else the publication must be inclosed in parcels covered by printed penalty labels, furnished by the Librarian, in which case they will come free by mail, without limit of

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J. Lew Rombach, Cincinnati.
MUSIC HALL—INTERIOR.

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Every applicant for a copyright should state distinctly the full name and residence of the claimant, and whether the right is claimed as author, designer, or proprietor. No affidavit or formal application is required.

In conclusion I will say that any one complying with the above will surely be protected by the Government. I shall be pleased to answer any questions on the subject.

ARISTO-PLATINO.

BY J. GEORGE NUSSBAUMER,
Buffalo, N. Y.

THE production of aristo photographs is the question of the day with the best photographers. So much depends on the print that I freely recommend the use of a paper with which I have had most excel-

lent results. Its great ease of manipulation commends it to all who wish to produce artistic effects, with a certainty of knowing just what one is going to have in the finished print. One of its excellent

J. Geo. Nussbaumer, Buffalo.
EXPECTANCY.

qualities is that you can get a range of tone from the very warm tones to a dark sepia and black tone. The paper also admits of the use of dark effects in backgrounds and accessories. We all know that no

pictures have the richness and depth of the old-time pictures with dark backgrounds. So many photographers admired the carbon prints displayed at the St. Louis and Columbus Conventions, and all because they had this richness that is so desirable, and only produced by the use of darker backgrounds properly handled, giving one greater relief, harmony and breadth than is obtainable by the use of light effects. You can produce these same effects on aristo-platino paper made by the American Aristo Company, and with a great deal less trouble.

Printing. Print a very little deeper than for regular aristo paper, about the same as on albumen paper for purple tones.

Washing. Wash the prints in five changes of cold water. As the water is now colder with approaching winter, it is best to use a little warm water to take off the chill.

Toning. For warm or sepia tones use the plain gold and water toning-bath made slightly alkaline with a saturated solution of borax. For black tones tone first in the plain gold bath for medium tones; then place the prints in the following bath:

Sulphocyanide of Ammonium	1½ ounces
Acetate of Soda	1½ "
Powdered Alum	1 ounce.
Chloride of Ammonium	20 grains.
Chloride of Gold	10 "
Water	60 ounces.

Neutralize the gold with precipitated chalk before adding it to the bath, and allow the same to stand two or three hours before using. This bath may be

used repeatedly by adding gold to keep up the strength.

Fixing. Fix five minutes in a bath of hypo crystals, one ounce; water, twenty ounces. Wash the same as for any prints, about one hour in running water. For mounting I use A. M. Collins Manufacturing Company's "Mintha" mounts. They are tasteful and appropriate.

FIGURE POSING.

BY GEORGE B. SPERRY,
Toledo, O.

WE are apt to think that, given a stylish-looking subject, we cannot fail to get something pleasing in a figure pose. In this we are sometimes disappointed, viz: that what we thought a good pose should fail to satisfy the eye when viewed on a finished picture. Is there some good reason for this? Was the pose made with due regard to surroundings? Did it have a "motive"? Are the expression, attitude, etc., in harmony with the drapery?

An easily neglected but important matter. We run our eye over a series of good poses, and admire them; but do we stop to consider why this one has so little action and that one so much? It is this "fitness of things" that makes the picture pleasing—this careful attention to all the requirements, that brings success. Let us note the following figures. In No. 1 the pose is most decidedly out of keeping with the

drapery. Our first thought on viewing this is that there has been an attempt to do something, and it has not been successfully carried out. We get this impression not so much from any particular fault in the pose itself as from its inappropriateness. When wraps are worn the first essential is action—too much repose here. This position is rendered still more ridiculous by the winter background. In No. 2 the pose would be appropriate if the wraps were off and a book or letter lying in the lap. This picture seems to have an air of uncertainty, or lack of purpose or motive about it. It is natural to expect some "go" in a pose with outdoor costumes. This is too meditative—has not enough action. No. 3 has sufficient action, but it is too "long," too "spread-eagle" like. It is only in No. 4 that the eye seems to be satisfied. In this, pose and expression are in keeping with the drapery. It is the most unaffected but most effective of the four. Good posing does not consist of dramatic attitudes. There is an unfortunate tendency among some of our *best* operators to strive for strained effects, as in Fig. No. 3. These dashy poses are sometimes quite taking and pleasant to look at for the moment, but they do not stand criticism. Look at No. 3 intently and see how soon the pose becomes rigid. Turn to No. 4 and see if the same scrutiny will produce the same effect. If you are working for cheap notoriety, loud poses will bring it. If you desire artistic results, be artistic in your efforts. Your pose should express ease and fitness; it should be an attitude that the subject would naturally assume under the conditions. Get your subject into the spirit

George B. Sperry, Toledo, O.

FIGURE POSING.

of the pose and direct the movements. You cannot force a hand or limb into a graceful position. One of the best samples of a perfect pose is Stein's "Morning." It has all the essentials of a picture. Its tone is pure and lofty; it appeals only to your better feelings. We hear and see more of "Seven Come 'Leben," and it is well worthy of all that is said of it. It is a remarkable picture, and its production shows remarkable skill and dexterity; but when we come to look at "Morning" or "Thoughts of Love,"[1] we feel that the man who composed those pictures has something in his nature that is better than dexterity.

Perhaps I have said nothing that can be of any practical value to you in handling your sitters, but if I can impress upon you the necessity of a higher ideal in posing I shall have accomplished much.

A word in conclusion about composition. Rules can do no good if the eye cannot recognize the value of balance, breadth, etc. But do not fall into the error of supposing that rules can be of no use to you. If you build your picture from a thorough acquaintance with the different forms of composition, the eye has only to approve. If you depend on that organ alone your work is a series of experiments until its judgment is satisfied.

[1] See engraving, page 165.—Editor MOSAICS.

HOW TO DEVELOP NEGATIVES FOR ARISTO PAPER.

BY A. N. LINDENMUTH,
Allentown, Pa.

IF you have not successfully mastered the development of negatives for aristo prints let me give a few

A. N. Lindenmuth, Allentown, Pa.
OLIVER TWIST.

words on that subject. A negative that will come up with all the much-coveted snap and bloom of an old-

time wet-plate is what I like to see. Get it thus: Make up a saturated solution of sulphite of soda, 20 ounces; add 1 ounce of dry pyro; dissolve by a few shakes; now add 8 ounces of a saturated solution of sal soda, with a few shakes again. This solution will keep for months. Of this solution add 1 ounce to 12 of tepid water. Develop a plate; if too strong, dilute the developer with a few ounces of water. There is a wonderful range to be had (with a little brains employed) with this developer. The solution as given above is without any water added. I have very successfully employed it for years. One may use it over and over again.

NEGATIVE-MAKING FOR ARISTO PRINTING.

BY W. N. BRENNER,
Bucyrus, Ohio.

THIS being the foundation upon which to the greatest extent the quality of the resulting work depends, it should, I think, receive the most careful attention in all its many branches.

The qualities of a negative I consider essential for making a good print on Aristo papers are: (1) soft but brilliant lighting; (2) harmony as to the lights and darks; (3) shadows well illuminated; (4) liberal exposure; (5) clean development to a snappy, but not too crisp, intensity.

My way of securing these qualities, while possibly not containing anything new or differing very much

from the way of many workers, may contain some points which will be helpful to some.

The first step in making a good negative is lighting the subject. I like subdued lighting, and generally screen down my light a great deal, admitting

W. N. Brenner, Bucyrus, Ohio.
A FAIRY TALE.

only sufficient direct light for my high lights; then, by illuminating well my shadows, I get good modelling, round, soft, yet brilliant negatives, with good detail in lights and shadows, together with the accompanying richness of the semi-transparent intermediate

gradations. I prefer a full exposure when possible, and keep the full, short, and light drapery exposures separate until ready to develop.

One of the most interesting yet difficult operations in making a negative is developing. To bring up and retain all the modelling and fine qualities which the careful pose, lighting, and exposure, confidently lead us to expect, is, I think, the most fascinating operation connected with our work. I use eikonogen (Cramer formula and plates), and having my exposures classed, I use three trays: No. 1. Fresh, normal strength; No. 2. Fresh, diluted one-half with water; No. 3. Old. To develop I begin with the short exposures, tray No. 2. Should the image show too strong in contrast and lack detail, I place it in a tray of water for awhile. Then, if it is not intense enough, place in tray No. 1 until desired intensity is reached. For white draperies I begin in tray No. 2; if image has good detail, but too flat, put in tray No. 3; if it comes up well in tray No. 2, but lacks snappiness, place in tray No. 1 for a few moments. Full exposures I start in tray No. 1; if too strong in contrasts I place them in tray No. 2; if too flat, in tray No. 3. As to the intensity needed, that should be determined by the composition of the picture; if chiefly light, the negative should be a trifle more intense than where composed of dark masses. After development I simply rinse the plate under the tap, then fix in plain hypo soda; after thorough fixing, wash in running water about an hour, then carefully sponge them and place on a rack in a draught of air, free from dust, to dry.

The fine smooth surface of Aristo papers printing with extreme detail and sharpness, necessitates our exercising the greatest care in keeping the film of plate and negative as free from imperfections as possible. I would say that cleanliness in all the different manipulations, filtering all solutions, dusting plates before and after exposure, and so on, will obviate much work, spotting, etc., and repay largely for the extra care and trouble.

PRINTING-OUT PAPER.

BY F. A. PLACE,
Chicago, Ills.

THE all-absorbing subject of the day is printing-out paper.

I remember very distinctly when dry-plates were first introduced to the photographers it was a question as to whether they would stay, and some of our leading men steered clear of them until compelled to use them; and now we cannot use anything but dry-plates. It will not be long until it will be the same with Aristo paper. In using Aristo in large quantities it is cheaper than albumen, from the fact that one man can print and tone about twice as many as he can of albumen in one day. My plan of handling the prints is to keep them as flat as possible and wash them thoroughly before toning. For a warm tone use a plain gold bath; for a black and white (not a chalky white, either) tone first in a plain gold bath until the

whites are clear, then change to a sulphocyanide bath, and tone until you have what you want. Then fix as usual. We wash our prints over night in run-

F. A. Place, Chicago.

OLIVER TWIST.

ning water, and they never fade. Washing is very necessary for a durable print. One using this plan for toning can get any tone desired, and will find that the prints will not have the chalky effect so often

seen in Aristo prints. After prints are mounted, never pile them together for any length of time before they are burnished, as they will turn spotted.

LIGHTING AND POSING IN PHOTOGRAPHY.

BY ED. DE MOULIN,
Greenville, Ills.

Two of the most important details of photographic practice, according to my judgment, are those of lighting and posing. A poorly lighted subject or an unbecoming position means a poor picture, no matter if the best of plates are used, or whatsoever may be the paper it is made on; while, on the other hand, take a subject well posed under a proper light, and you will have a satisfactory picture. The tone or kind of paper used has not so much to do with a good picture as the lighting and posing, and that is the reason I have selected this subject, trusting that I might say a few words that may be of benefit to some of the readers of MOSAICS.

I find that the most fatal mistakes in lighting are those where too much light is used. But a short time ago, I called on a brother photographer who had a skylight 20 x 30, and a sidelight 7 x 20, and was using his light full open, without screens or curtains, and he was blaming the plates and developer for his inability to get a good negative with nice details and shadows. He was good in posing, but

expected the plates and developer to produce the effects in light and shade. I told him that his plates and developers were all right, but that he might about as well pose his subjects out of doors, and use the whole sky as his light, as to use his skylight full open. I showed him that shadows were produced only by shading the light from certain directions, so as to produce contrast, and that light pouring from all sides was bound to destroy all the depth of shadows and make nothing but a poor, flat, undefined negative. I had him pose for me, and screened down the light directly above him and to the side, leaving but a little light behind him, to illuminate the backgound and to give depth to the picture—cautioning him not to use too much light back of the sitter; I arranged the light so as to have it fall on him from the side- and top-light at an angle of about forty-five degrees, then asked him to make an exposure while I posed in his place, and for him to use one of the same plates he had been using, and developing it with the developer he claimed was no good. As soon as the image began to appear he agreed with me that all his trouble was in lighting and not in the plates or developer. He went on to say that he thought that his plates were flat on account of over-exposure, but he tried to shorten the exposure, and then found that the plate would come up without detail, and decided that they were no good. How many there are who make just such mistakes.

To be good at posing you must study your subject closely, and decide by his or her features if a front or side view is the most becoming, or if one side of the face looks better than the other; when you have de-

cided thus far, you must next study the disposition of the sitter; for instance, if your subject should happen to be an old maid, frowned with years of discontentment, it would not do to give her a coquettish pose and

Ed. De Moulin, Greenville, Ills.

THE SMILE.

to attempt to get an expression to suit the pose, as such would be a failure. Fancy poses are all right in their places, but they do not suit all persons. Always study expression with pose; should you have a subject with

large nose, sunken eyes, and high cheek bones, do not take a side-view picture of him, nor use direct top- or side-light, or his eyes will appear more sunken and cheek bones larger; use a light well to the front and a little from the side, so as not to throw shadows across the sunken places. Always first judge from the features what position will become your subject best, then regulate your light accordingly.

One very important point in posing is, as a rule, not to have the head turned in the same direction as the body, as it gives too stiff a position, and looks too much as if the subject was sitting "just to have a picture taken." Try to pose a person sitting with his body square with the instrument, have him look straight forward, and see how stiff he looks; then turn his head to one side and you will see how much more life it will give to the picture. This can almost be made an invariable rule: never turn the head in the same direction as the body, and try to give your subject a position that is easy and becoming, so as to overcome a conscious pose.

Another important point in posing is to have your subject rest his eyes in the right direction. If you have no eye-rest, one can easily be made by fastening a cabinet picture with a piece of spring-wire on a curtain pole about five feet high having a foot-rest. As a rule, have your subject look a little lower than the level of his eyes, as looking too high will give a wild look, while a little lower will give a milder expression. It is also well to advise your sitter not to look too steadily at the rest, and to place it at a good distance from him, as looking too steadily or too close will give

the eyes a staring or scared look. Quite a large volume could be written on lighting and posing, but, my space being limited, I will conclude my remarks, and trust that they will be helpful to some of the readers of MOSAICS.

MOUNTING AND FINISHING ARISTOS.

BY CLARENCE ROSE,
Chariton, Iowa.

I MUST confess in the beginning that my methods are so thoroughly simple that this article may be worthless. I am using "Jr" paper at present, and put it through in the same way from day to day, generally without loss. With my handling the prints are always flat and easy to work, so that good speed can be made all through.

After thorough washing (and sometimes culling) I pile prints in rows on a board covered with oilcloth. This I prefer to a glass, as it is easier to keep clean, and a little pressure does not break it. Next I squeeze the water out from between the prints and blot the surface. The board is then stood on end, allowing the prints to set. Paste, which has been made of starch dissolved in water, and stirred in boiling water, is now strained through cheese-cloth into a handy paste-board box, and the paste-pot is put to soak. The wash-table is covered with clean papers, mounts are piled ready, and all is ready for mounting. With cabi-

nets I paste a half-dozen at once, pile them on the table, cover them with a blotter, and with a rubber roller give them pressure. Then a hasty yet careful glance for air-bubbles, and the prints are laid on stretchers

Clarence Rose, Chariton, Iowa.
MODESTY.

of cheese-cloth, tacked on light wooden frames, lying on top of each other until all done. Then I clean up for the pasting. I let the prints dry until set and until they commence curling and are clear, yet not dry. Lubricate with dry Castile soap applied

with a tuft of cotton, and polish with a hot double-roll burnisher. Then I separate prints, and spot with the ordinary colors, place them in tissue enclosures bearing the inscription: "An aristo from Rose," and they are soon in the hands of customers clamoring for duplicate orders. A very simple method, to be sure, the reading of which is hardly worth the time expended, and yet these simple methods are the most rapid and best ones, and always win.

POSING CHILDREN.

BY JOHN B. HOSTETLER,
Davenport, Iowa.

THIS subject will admit of much thought and study, if the operator wishes to be a success in this particular line. And allow me to add that it is not a small line, for one-half of the regular work is children's pictures, so that fine, successful work in this will win you more trade than anything else.

In a well-equipped studio you will find accessories for children especially adapted for them. You cannot pose children altogether with large accessories, such as are used for grown people. Get playthings, such as children are used to, then they take to them naturally. Playthings will please your subjects, get them to make up with you, and in a few minutes they forget they are there for the purpose of having a picture taken. If you can gain the confidence of your sub-

ject (which some operators have the knack of doing, and some the misfortune of not doing), then you are at liberty to do as you like. Of course the same scheme will not work on every child. You must

Jarvis White Art Co., Davenport, Iowa.
A SUMMER GIRL.

take them as they come, with their different ways; coax one and drive another. What will make one laugh will make the next one cry. There is no rule; you must learn to make up with all of them; leave

off your dignity and make a monkey of yourself for your subject if necessary. Do not talk to them of how to look, or to smile a little, but make them forget all about having a picture taken by telling a bear story, or the first thing you think of that will interest them. Then you will find, when you develop your plate, an expression which is natural, with eyes full of eagerness and delight, in fact all you could wish.

In posing children do not screw them up in some unnatural position, get something childlike; use your influence in various ways to get them to do what you want, but do not use your hands any more than necessary. Keep them on the bulb, so as to catch the expression and position at the first chance, for the quicker you are the less you will worry your subject, and the better the result. Do not let the whole family, with a few aunts and cousins, into the operating-room to pull the several different strings at the critical moment. One centre of attraction at a time; if you gain the confidence of a child you can handle it best by yourself, for it would be nice to hear them laugh (Oh! how cute) and look around just as you press the bulb. Use plenty of light, your lens well open, so you get a full-timed negative with a snap exposure.

Patience is a virtue, and this is doubly so in the operating-room. Why not use your good common sense? If a child will not do what you want, the best thing is to do as it wants to. Do not lose your patience; if it will not sit to-day you may get it to-morrow; but, if you lose your patience, you will lose your customer, besides your temper; do not

growl when a kid comes in for a picture. Such are your easiest subjects. Go at them as with pleasure; you will be surprised at the difference in the result. Get some feeling and enthusiasm in your work; be a child with children, go at them as if you knew they would do everything you asked. Have patience; success will follow. And you can add to all this, breadth, lighting, composition, development, good prints, and last but not least, a good price.

POSING AND ILLUMINATION.

BY F. H. CURTISS,
Lansing, Mich.

MANY times, in order to obtain results which will please the sitter, it is necessary to put the subject in a somewhat uncomfortable position. When it is done the operator will often fail to get the desired result, because of fear or nervousness in the sitter.

I have found success in this work by encouraging the sitter, and making as quick work of the sitting as is possible, avoiding too much alteration and change, which fatigues and wearies the subject.

In working quickly, as here advised, everything depends upon the knowledge of his light possessed by the photographer. With this knowledge he can at first place his subjects in almost the right pose and light desired at the first move. This matter is one which practice with a model on dull days will help very much.

Sometimes we see subjects well posed but poorly lighted. This results from a lack of knowledge of the elementary rules of illumination in portraiture. In such cases only diligent study and practice can be

F. H. Curtiss, Lansing, Mich.
LITTLE SWEETHEARTS.

available, and should be deliberately pursued by the photographer.

I am personally much inclined to lighting the figure and face from the back and side, and find that with these lights, having the top lights almost covered,

I can obtain roundness and softness combined, which gives a lively negative and a good printer for aristo papers.

In my lighting I almost invariably use a head-screen, and sometimes a side-screen, paying particular attention to lighting the ground properly, thus securing breadth and relief in my work.

Upon posing and lighting depends expression, which makes or ruins a portrait. By simple but careful posing, judicious lighting from that point where the light helps and brings out my subject rather than depresses it, by proper exposure and nicely-timed development, the photographer may be sure of twelve pictures from every dozen plates he uses.

PHOTOGRAPHY AS A BUSINESS.

BY D. E. ROWELL,
Lancaster, N. H.

IT seems to me that the cry of "hard times" and dull business, which we hear so often in the photographic journals, and which we know to be the case among a great many of our fraternity, is due primarily to the lack of business enterprise of the "dull times" photographers themselves. Hundreds of good workmen and many among the best of our photographers to day are handicapped by their own lack of the "get there" qualities which make a successful business-man. The time has passed when

business comes of its own account to a man's door and humbly asks admission. The man nowadays who gets the business is the man who is earliest up in the morning. I believe in looking for business, not in waiting for it to hunt me up. There is any

D. E. Rowell, Lancaster, N. H.

IN DOUBT.

amount of undone photographic work in every city and town in our country, and if it does not come to you, go and find it, and when you do find it make the customer not only a customer but make a walking

advertisement out of him; and if this is done the live photographer will have a host of walking advertisements in a short time.

And when customers come to your studio, there's where your talent as a salesman comes in. Try to sell them a little more than what they order; try to sell them a larger picture than they had first thought of ordering; try and sell them a little better grade of work. When your sitters are undecided as to the style or size desired, expose your large plates; it's dollars to doughnuts that you get an order from a nice large negative, where, if you had not exposed the plate and shown the sitter the proof, you would never have got an order in the world from the customer. What with all the beautiful new matt-surface papers, platinotypes, tasty new mounts, a photographer who lets a customer go out with just a single dozen cabinet photographs for three dollars has neglected a very important part of his business education. You can't sell these every time, but it will prove profitable to try it on every customer. Get out the big camera that stands all dust-covered in a corner of your operating room, and make it pay for its keeping. Try it this year, and see if the order-book does not figure up larger next. If business gets dull, why the fault is yours. Remember that the man who hustles "gets there." Finally, aim to deal with every customer as if you were that customer. Treat every order you receive, large or small, as if it were the only order in the house, and always give for a dollar a dollar's worth of goods, for it is far better and cheaper to keep a customer than it is to make one.

BURNISHING GELATINE AND COLLODION PRINTS.

BY GEORGE W. DAVIES,
Portland, Oregon.

THAT the end crowns the work is nowhere more true than in photography and burnishing. The last act in turning out a photograph, ought, if done properly, to put the finishing touch to the good work that has preceded it.

In order to obtain the best results from gelatine papers, the prints should be burnished when yet slightly damp. An even dampness is best obtained by drying prints on lines placed one above the other, thus allowing the air to circulate freely through them. As the prints dry, they should be stacked in piles, in which way they can be left until the next day without burnishing, if so desired. It is easy to ascertain whether a print is dry enough by passing the hand over its surface, and in the same way any wet spot can be detected.

Before running the prints through the burnisher, hard Castile soap of the finest quality should first be applied to the surface of the print with a canton-flannel covered pad, and then rubbed gently but thoroughly off with a piece of canton flannel.

The burnishing should be fairly hot. If it is too hot the prints will blister or change color from the original tone. It is only necessary to run them through three or four times, and the result will be a beautiful and high polish. If the prints are allowed

to become bone-dry before burnishing, they will look dull when finished.

Collodion prints, on the other hand, need not be watched when drying, as a fine polish can be obtained

Geo. W. Davies, Portland, Oregon.
MODESTY.

on prints that are perfectly dry. If, however, they are burnished when slightly damp, an enamel-like polish will be obtained. Collodion prints should not be stacked when damp, as it often causes white spots to appear on their surface.

SKYLIGHT CONSTRUCTION.

BY A. C. NOVESS,
Mt. Clemens, Mich.

A. C. Novess, Mt. Clemens, Mich.

A VIGNETTE STUDY.

ONE of the first requisites for successful negative-making under the skylight is an abundance of light which requires the least change and is under perfect control of the operator.

After trying several different arrangements I have a light now which meets my approval in every respect.

My skylight is 14 x 14 ft. ground-glass. Next to the top sash is a set of dark curtains beginning at the top and extending half way to the side light. Beneath these, and nine feet from the floor, a set of heavy white curtains covers the light, and no light is admitted except that which passes through these curtains, which are never moved; and the light coming through and between the dark curtains has a softness which secures rotundity and does not in the least interfere with its speed.

My side-light is 12 x 6 feet, facing south, also of ground-glass provided with two sets of curtains which can be easily moved so as to exclude the light or admit more.

I was cautioned, when putting in my light, that it would not work satisfactorily from the south, but now, after using it eight months, I can find no fault with it, and were I building another would surely put it in as I have this one.

The side slip and head-screen is a very essential piece of apparatus. Mine is a frame 6 x 6 ft. with a frame 3 x 6 ft., hinged about one foot from the top, which is so arranged that it can be easily lowered or raised. It is covered with cheese cloth. After one has become accustomed to this style of screen it will be found almost indispensable for any style of light.

TONING AND WASHING ARISTOS.

BY G. S. BEARDSLEY,
Charlotte, Mich.

THE aristo (collodion) printing-out paper, like every other new process in photography, brings its train of

G. S. Beardsley, Charlotte, Mich.
POSING.

troubles and difficulties to be met and overcome. This is particularly true in the direction of toning

and washing. Generally speaking, to know the cause of a difficulty is to know the remedy, if one is possible. In the following remarks a knowledge of the importance of perfect cleanliness in all that pertains to photography is presupposed. Also the importance of having separate trays for each of the following operations, viz.: the preliminary washing, the toning, and the fixing. These trays are never to be used for any other purposes than those for which they are set apart.

These points being perfectly understood and followed, there are usually but few matters that give much trouble to the careful worker. Among these may be enumerated the following: 1, streaks and unequal toning; 2, red spots, and 3, the tendency of the paper to curl.

Streaks and unequal toning are commonly the result of insufficient preliminary washing, and are caused by a small amount of the free silver remaining unequally in the paper. The remedy is of course more thorough washing. Red spots are quite usually the result of the fingers coming in contact with the surface of the paper previous to placing it in the water. To demonstrate the matter, if the reader will touch the surface of a polished plate of glass with the finger ends he will find in most cases markings that can be removed only by considerable rubbing and polishing. These markings are caused by the natural oily secretion of the fingers adhering to the glass. In like manner the fingers coming in contact with the hard and brilliant surface of a collodion paper will leave similar markings, sufficiently oily to repel

the toning solution, and red untoned spots are the consequence. The remedy is obvious and consists in keeping the fingers off the surface of the paper altogether. This may seem difficult, but with care it can be accomplished. After the print has been placed in the water further precaution as to touching the surface is unnecessary.

The tendency of a collodion paper to curl into small cylinders upon the first wetting is well known, but by following the directions of the manufacturers as to dampening and flattening, the prints can be made to lie reasonably flat. Notwithstanding this, the print if placed in water of much depth, collodion side uppermost, will show a decided inclination to curve upward, either at the ends or sides. While this tendency is regarded by some as an annoyance, it will if properly managed prove a decided advantage and greatly facilitate the final washings. The principal point to be observed is, always to keep the prints face downward through every operation from the preliminary washing, through the toning, fixing, and final washings, until the print is finally mounted upon the card. The only other restriction is, do not use solutions or water of too great depth; experience will indicate the proper quantity to use.

By observing the few hints contained in the foregoing the writer has been enabled to handle aristo paper with as great ease and rapidity as albumen or gelatine paper.

HANDLING THE YOUNG PEOPLE.

BY WILKIE G. COSS,
Grand Rapids, Mich.

THIS is a subject that should demand the closest study from every photographer, not only from an artistic, but from a business standpoint. A happily posed, bright and laughing picture of a little one wins more praise and secures more patrons than a dozen portraits of adults.

From close observation I find it pays, and gives results much more satisfactory, to take time enough to get aquainted with each little one that comes into the studio, before proceeding to make the sitting.

Get all ready for the sitting, then get the little folks interested, so they cease to be shy or afraid. Keep them so, all the while getting them into position. Keep up your talk all the while. Your picture is taken; it is a success, and they are entirely unconscious of the operation. By so doing it is no trouble to get natural, childlike expressions, which cannot be secured if the child is afraid of the operator. An operator should provide himself with toys, such as delight the hearts of the little ones, as happy hearts are reflected in their faces, and never disappoint little ones by promising to show them a kitten, dog, bird, etc.; always have something that resembles the thing promised, as it will satisfy them. A child never forgets a disappointment of that kind, and should it come again, your task will be harder and less successful, through lack of confidence.

Don't try to force an obstinate or shy child, but take time; and right here is the place to use knack and head-work.

Don't, by all means, get out of humor, for, if you

Wilkie G. Coss, Grand Rapids.
SPRINGTIME.

do, the child secures the advantage of you; you get no picture and no future patronage.

Make them forget themselves; with toys you will get the result you want. Toys don't cost much, but they cut a great figure with the little folks and your success.

Right here I would say: Have your shutter-tube long enough, that you do not have to lay the bulb down, but can reach the subject to arrange the drapery, put a hand in place, or do any little thing that is required, as you save so much time, and get so many pretty flitting expressions that would be lost if you had to return to the camera for the bulb.

The universal opinion that it is harder to get pleasing pictures of young folks than of the old is easily changed if you give the subject the proper attention and care. Find out what strikes their fancy most—a dog, cat, bird, etc. Something will catch them; have what you promise handy, anything that looks like the object (I prefer rubber toys), and they are satisfied and happy; your work is easy, everybody is pleased, and you secure an advertisement you could not get with money. It is more lasting and more beneficial than any other means.

Strive to get pleasing pictures of the little folks, and you are sure of all their big relations. I consider a case of well-posed, laughing babies and children at my door the case that will be most admired and bring the most dollars—and that is one very essential thing.

I would advise you to try my plan. Get acquainted with your subject; keep lots of toys. Don't lose your temper, but always be smiling and pleasant. Never say a child is any trouble. Try to make each picture more pleasing than the last; and I think your trade in little folks (and big ones) will increase to your entire satisfaction.

IN THE PRINTING-ROOM.

BY W. F. JOHNSON,
Picton, Ontario.

I HAVE observed, more particularly among the fraternity in the small towns and country districts, that the impression is abroad that anyone will do for a printer. Young apprentices, inexperienced girls, and sometimes even young children are given the charge of this important branch of photographic work, with the result that inartistic prints are turned out from even the best negatives; and inferior negatives, of which there are always a few even in good galleries, are made worse by the incapacity of the printer.

The fact is, that to be a good printer it is necessary to have not only careful training and many years of experience, but also a very keen appreciation of the artistic. It requires an artist to be a good operator; one who is quick to perceive the grace of his subject, there being as much grace in the rough laborer with his shovel, or the rude farmer out on his native hills, as in the most fairy-like flaxen-haired "two-year-old" in filmy muslins and fleecy laces, if the laborer or farmer is only photographed as the baby is, viz., by giving him suitable accessories and then amusing him until he forgets the self-consciousness that produces the rigidity of an unhewn block of marble, and like the graceful, prattling baby, poses himself to the extent of letting his muscles relax, and takes on his best expression because he takes on his natural ex-

pression. If it is necessary, I say, to have an artist behind the camera, it is also necessary to have an artist behind the printing-frame—one who is working not for money only, but for love of his work; one who enters with the keenest zest into his work; who "sizes up" a negative as soon as it gets into his hands, and knows from instinct how to increase the artistic beauty of the print by softening the detail of the background into misty vagueness, thus bringing the central figure into greater prominence; or suggesting, by a touch here, or a line there, or a shadow beyond, the setting of the picture; or when such light and airy effect would be a positive detriment, to so handle the negative that the print will show the best of the subject. An artist in the printing-room will know not only when to vignette, but *how* to vignette. How often a bungling printer spoils what might be an artistic pose by failing to blend into vagueness a sharp angle or an awkwardly-posed hand or arm; or by taking in some ugly drapery over which the operator has no control, because his "sitter" thinks the ugly stuff charming, and pays him, not to criticise her taste, but to metamorphose its ugliness into beauty. I recall one such instance, where a very pretty effect was lost in this way. It was a bust portrait of a mother and child. The little one had one arm twined around the mother's neck, and the other tiny chubby hand clung, baby-like, to the mother's fingers. But the mother's arm was enclosed in a loose, ill-fitting sleeve, and the pose that gave a childlike prettiness to the baby's hand made hers appear awkward and ungainly. A good printer would have shut out these

defects by the skilful use of the vignette. If the arm had been vignetted out, and just the tips of the mother's fingers had been left, suggesting a pretty

W. F. Johnson, Picton, Ontario.
A YOUNG CANADIAN.

hand reaching through a white mist to clasp that of her baby, the effect would have been simple and charming.

Often, too, in printing views a vignette may be used to good advantage to bring out the important points and to soften the parts that would detract from the

beauty of the scene, thus giving to the whole the charm of breadth and extension, leaving something to be filled in by the imagination of the beholder. Particularly suited to such a method of treatment are marine views and views of lakes and rivers with rocky bluffs in the foreground.

In selecting mounts care should be taken not to have too great a contrast between the photo and the mount. As a general rule, dark mounts are more artistic with dark backgrounds, and light-colored mounts with light or vignetted backgrounds, as it avoids what is generally termed "intensifying" and gives a breadth of margin that is restful to the eye.

BACKGROUNDS AND ACCESSORIES.

BY D. GILBERT,
Frankfort, Ind.

UPON the intelligent selection and use of his backgrounds and accessories, the portraitist who uses aristo paper in his gallery must largely depend for success. The new papers give such delicacy of detail and depth that their introduction has not only effected a revolution in negative making, but also in the choice and handling of backgrounds and accessories.

For aristo portrait-work the old heavy style background is useless, and the falsity of the *papier maché* rocks and boulders is easily discerned in the print.

For general portrait work the grounds used must be light and sketchy, without obtrusive detail of form or tone. With such backgrounds the figure is thrown

D. Gilbert, Frankfort, Ind.

MEDITATION.

into pleasing relief, and roundness is gained, with added depth in the picture. For heads, vignettes, and half-length figures I find a square woolen background of light neutral gray very useful. The surface of this ground is in appearance like rough wool

felt, and I find that I can work on the top of this surface lightly with powder or crayon of any shade, as required for my subject, and afterward tone down or remove the color from the ground with a whisk broom.

Another point from my practice is that in the great majority of cases the use of a plain graded background, curved at the bottom to meet the floor-line neatly, and shaded upward from dark to light, will give more satisfaction than the use of a fancy-figured ground. In plain grounds the massing of the shadows can be helped materially by turning the ground at various angles, and in some cases by tilting it forward a little.

In choosing a fancy ground the photographer must be guided by his taste. The great variety offered by reputable makers has never been so high in quality and effectiveness as it is to-day. With a few exceptions the backgrounds of such makers as Seavey, Hetherington, and Bryant, may be accepted without question.

A last item of interest relates to the storage of grounds when not in use. Too many grounds about the gallery give the place an air of untidiness. The appearance of a lumber room should be avoided. This can be effected by partitioning off from the gallery, or adding to the gallery, if possible, a small enclosure of sufficient size to store the grounds, standing them endwise on their rollers. From this enclosure they can be brought out as required and fixed in the holder.

Much already said about backgrounds may be

referred also to accessories. They should be light and suggestive, showing curves rather than angles, graceful in line and not too strongly built. The present-day tendency to use wicker chairs in the gallery has its advantages, but from the work I have seen lately I would caution operators against working the idea too strongly. It is true that oftentimes the wicker chair, with its sinuous lines and graceful design, is more attractive than the actual sitter, but this fact cannot excuse the undue prominence of the chair in the picture. The sitter should always be the centre of interest, and all else subordinated.

After all, subordination is the key to success with accessories. The great fault of to-day is lack of concentration in portrait work. Many workers put out all the year round pictures which are so crowded with details, all equally striking and attractive, that one has to stop and deliberately puzzle out the sitter from amidst his or her surroundings. This should not be. Select your grounds and accessories with all the taste you possess; use them judiciously, and keep subordination before you as the keynote.

HANDLING SITTERS.

BY M. W. STARKS,
Sioux City, Iowa.

As every operator is aware, all sitters must be handled according to circumstances, as they present themselves, and not by any set of rules.

If an operator has himself under good control, coupled with good humor and plenty of tact—with a thorough knowledge of his business—he has plain sailing. If, on the other hand, he allows himself to be "worked up" by the (what he calls) "whims" of his subject, his road will be anything but a bed of roses. The first thing we have to consider is perfect self-control; no matter how trying the situation is, make the best of it—do the best you can, and do it cheerfully. Keep sunny; if you lose courage look up to your skylight. When sitters return, after you think you have done the very best for them it is possible to do—don't frown. Look pleasant, even if you do not feel so. Try again—try hard to improve upon your previous effort, and perhaps you will succeed.

Never act "nervous." Let all your movements be calm and to the purpose. Make as little noise as possible in shifting screens, etc.

Take no notice of nervous persons' nerves—but be gentle with them. They cannot always control themselves. Nervousness is sickness. There is where you may use all the tact you possess. When a jolly crowd of girls and boys come for a group, let them laugh; the more you encourage them in so doing, the sooner they will get down to business. If a sitter insists on a certain position, don't argue the case, but make it as desired—then make others according to your own judgment. As a rule, your judgment will be accepted.

To be successful with children you must love them. It is then easy to gain their confidence, and

they become the most tractable, interesting, and remunerative of subjects.

M. W. Starks, Sioux City, Iowa.
A PROFILE STUDY.

Be patient, obliging, cheerful, and tidy. Subscribe for our best magazines, and read them them, for you will find them friends in need and friends indeed.

GENERAL MANIPULATION.

BY G. E. WATERMAN,
Ypsilanti, Mich.

G. E. Waterman, Ypsilanti, Mich.
HAPPY CHILDHOOD.

THE first point gained is in winning the sitter's confidence. After having the light adjusted properly and exposure is made, then the manipulation of the plate should be done with care, so as to save the softness of light and detail in deepest shadows. I always

start with a normal developer (eikonogen), and use it cold. The extra time I spend in the dark-room I save elsewhere. In retouching it is better to do too little than too much. In printing use two or three tissues over the negative; this gives the best results. Tone until the high lights are clear; fix in a separate bath. The photograph I send to engrave was made on a Cramer B plate, eikonogen formula (Cramer's) developer. Exposure instantaneous.

BUSTS AND VIGNETTES.

BY J. A. BARNES,
De Soto, Mo.

THERE is no style of picture in which you can do your sitter the justice you can in a "bust vignette." I am not going to try and educate those who may know more of our art than I do, but will explain as best I can *how I do it.* I use my skylight stripped entirely of curtains; use no side screen, but have a platform on casters, so as to be able to move the sitter to any part of the room. To be concise, I move the sitter to the light instead of the light to the sitter. Use a light-blue felt background and keep it well away from your sitter. Get your light well behind the subject, and by all means use a head-screen, which to my way of working is indispensable. As far as the pose of the head is concerned, you will have to use your own judgment. Get acquainted with your sitter, seize upon his whims, and use them

in helping you to make your pose. For busts of ladies use a vignette in front of your lens. This will help you greatly in the vignetting afterward. Vignetting is one of the neatest operations in the whole

J. A. Barnes, De Soto, Mo.

THE SISTERS.

business, and no matter how good your negative is, if you do not make a nice, even, clean vignette, your work has been for naught. For busts use the "Dixie" vignetter, which is simple and effective, and is adapted to all sizes of heads. For full and three-quarter

figures I raise my frames about half an inch all round, and use cardboard with an opening adapted to the photograph to be vignetted. Over this put at least two thicknesses of cepia or onion-skin paper. Do not cut the opening in the board too close to the shape of the figure, but blend away clean and even. Of course, with scenic backgrounds you will again have to use your judgment. Discard all complicated vignettes. Simplify your way of working as much as possible, then you cannot help but succeed. These suggestions are given in the hope that they may help someone who is not giving the subject the thought it deserves.

THE FUTURE OF PHOTOGRAPHY.

BY W. G. C. KIMBALL,
Concord, N. H.

WITHOUT doubt every thoughtful photographer in the land who has the advancement of the whole profession, as well as his own individual interests, at heart must at some time in his career have had occasion to sincerely regret the low station photography occupies, as compared with its possibilities and its honest merits, when thoroughly educated and finely-cultured men stand at the camera, trained in technical schools as carefully as though medicine or the law were the chosen themes for life-work. A man who belongs to the Old Guard, who has had to work his way along by, in many cases, blind experiments on a trusting public,

has, let us suppose, a son who wishes to succeed him. Must he go through the same uphill route (as if a young M.D. should open an office and commence amputating legs and arms for surgical practice)?

W. G. C. Kimball, Concord, N. H.

THE WELCOME.

It seems to me our greatest need at the present time is for a finely-equipped technical school or photographic university, where the foundations of a first-class knowledge of chemistry, particularly as it relates to photography, could be acquired, also an understand-

ing of art principles as they would bear on lighting and posing, and with it all a good, sound business education, as well as enough of the classics, so that a man could talk five minutes with an intelligent sitter without displaying a poverty-stricken mental equipment. How great the difference in the social scale is the position held by a doctor of medicine to-day compared with Shakespeare's time. Then he was a "leech" only. Of course, education, which begets self-respect, and consequently exacts it from the world at large, is the magic wand that has made the transformation.

We are beginning to have wealthy men connected with the profession—platemakers, stockdealers, etc. Millionaires are here and there "en route." Why should we not have scholarships founded by Cramer, Seed, Anthony, and French? Let us work in every possible way for the higher education of photographic students.

WHAT ABOUT BABIES?

BY J. A. BRUSH,
Minneapolis, Minn.

I HAVE been asked "the secret of success with the babies" as it appears to others to be demonstrated by my photographs of them. Almost every morning when I awaken the thought comes to me: "I wonder how many children will I have to photograph to-day?" Then the procession begins to fill my imagination and the pantomime begins. "Pantomime,"

did I say? Yes, that is the only word to use here, because my fondness for dealing with the little creatures, my sympathy with their life, motion, animal spirits, make the work of picturing them a pantomine. What whim! what fancy! what eternal movement! is there among them as they come one after the other, all the livelong day sometimes (for they often come in clusters—like grapes). They are the chief performance in my Lilliput pantomime, and I am simply the stage manager. They are like the blood in one's veins, never still; and the music runs with equal vivacity through the whole spectacle like the patterns of watered silk or the marks upon an unwashed plate. As they come I observe how they swing, and waver, and tiptoe, and skip and pose, or how they whirl, and spin, and laugh and cry. Then I make friends, and we begin.

It is a fearful thing to be alone with a baby that you cannot manage; nevertheless, I like to take the risk and wrestle alone, when it is possible.

After friendship is established between us I go to work and try do my best. I do not see how I am to say any more about it. I am no poet, but I believe in the realties of the imagination. I look upon my pictures as, in a great sense, the realities of my imagination.

When a man passes through a rich person's park and sees things in it which never bless the mental eyesight of the owner he is the richer of the two, for more results of pleasure come home to him. Knowledge, sympathy, imagination, are all divining-rods with which he discovers treasures. The painter sees not only the general colors but the combinations and

contrasts and the modes in which they might again be combined and contrasted. He will also put figures in the landscape if there are none there; flocks and herds, or a solitary spectator, or Venus lying with

J. A. Brush, Minneapolis.
THE QUARTETTE.

her white body among the violets and primroses. If the richer man is a musician instead of a painter, the music of the birds, the rattling tones of the cascade, the serenade of the wind, the whisperings of the leaves, and a hundred other sounds in ways which never come to the owner of the park, will greet him.

And why should the photographer not likewise see in his little patrons, as well as in all, what others cannot see, and bring out their lovely qualities and graces and beauties in his pictures—*i. e., make pictures of them?* The poets are called "creators," because with their magical words they bring forth to our eyesight the abundant images and beauties of creation. They put them there, if you please; and so are literally "creators." But whether put there or discovered, whether created or invented (for invention means nothing but finding out), there they are. If they touch us they exist to as much purpose as anything else which touches us. Now, then, if your pictures of children touch the feelings of their guardians, and bring exclamations of pleasure and satisfaction to their lips, then you are—never mind about being a poet—an artist, and you are on the road to fortune and to fame.

THE LADIES—AND HOW TO DEAL WITH THEM.

BY F. M. SOMERS,
Memphis, Tenn.

FIRST impressions are the most lasting, and for that reason I think it necessary to have a neat reception-room and office under the charge of a lady tidy-looking and neatly dressed. This first impression, if favorable, makes easy sailing for the operator.

Ladies coming into the office are greeted pleasantly by the lady in charge, although nothing is done to

make them feel that we want the worst in the world —their seven dollars.

We want them to feel that they are being treated honestly, and I think that is the mainspring of suc-

F. M. Somers, Memphis.
JACK THE TEASER.

cess in any business. The prices I charge (*i. e.*, $7, $8, and $10 for cabinets) give me an exclusive patronage of the most cultured Southern ladies, and when once you gain the good will of the society ladies you can snap your fingers at the gentlemen, be-

cause they will break their necks to follow. After the lady leaves the toilet-room, if one or several others are with her and start for the light, they are informed that "it will be better to leave the sitter alone," and if they then continue to crowd under the light I say, "It will be necessary to leave the sitter entirely alone." This generally ends by one of the ladies saying, "Oh, I beg pardon; certainly." Then I explain to my sitter how impossible it would be to arrange and pose her while others were looking on. In this she agrees with me, and I spend some time studying and touching up a straight mouth, making it a little smaller with grease paint, helping out the eyebrows and powdering the hair. All this time I am gaining her confidence. I then make three or four sittings of different positions, and tell her the lady in the office will inform her when the proofs will be ready.

Invariably the lady will say, "I know they will be fine; I never sat to anyone who took so much pains; I thank you so much!" In dealing with cultured ladies one is in an atmosphere that bears him far above the man who caters to mediocre patronage at starvation prices.

Some claim that society ladies are hard to please, and when I observe how some photographers deport themselves I don't wonder. When I first opened business a great many customers would dictate as to what position they wanted. I always informed them that there were others in the city who would be glad to make pictures to order, but that I would not. Now I am never ordered to make anything. They

ask my advice in almost everything pertaining to the picture.

Nearly all ladies like to see a certain amount of genteel independence, and I favor them within almost the limit. After making three or four sittings of a lady she will very often want to order from all the negatives. In such cases I charge an extra dollar for each additional negative. I never abate my prices, and so my patrons who like more than one negative pay ten to twelve dollars for a dozen cabinets, feeling well pleased, too, that their servants cannot have the same artist's name on their pictures, as I refuse to work for negroes at any price.

I pay no attention to other photographers reducing prices. I receive the highest prices in the Southwest, and keep seven people constantly busy.

OUR RECEPTION-ROOM SHOWCASE.

BY FERDINAND FLODIN,
Worcester, Mass.

BEING thoroughly dissatisfied with the ordinary glass showcase used in photographic studios, on account of the awkward method by which prints have to be piled in, taken out, and handled by customers, so that a new print would, after two weeks of handling, be unfit for a sample, I one day saw a half-tone of the Wood "Display Cabinet."

My first thought was to buy one immediately. But, out of old habit, always giving preference to second

thoughts, I decided to have one made, if possible, cheaper, or at least, one that would answer my purpose better. (This is not meant to bring discredit on that very attractive studio ornament, the Wood "Display Cabinet.") Consequently I had a frame manu-

Flodin & Thyberg, Worcester, Mass.
THE MONK.

facturer make me ten frames, 24x30 inches, of plain oak moulding; then a groove was made on the inside edge of each frame. In these grooves a double thickness of ordinary back-board was fitted, covered with canton-flannel on both sides.

The frames were then hinged together so that they could be turned like the leaves in a book, standing upright, and could also be closed like a book when not in use.

I also had a plain oak stand made to put my frames on.

Flodin & Thyberg, Worcester, Mass.
RECEPTION-ROOM SHOWCASE.

I used liquid glue to fasten the prints on these frames. The glue sticks very readily to the flannel and leaves no mark. If the picture should be renewed it is taken off and replaced by another.

The cost of these frames complete was only $10.

The advantage of all such cases or cabinets is that

your customer only *looks* at your samples—never *handles* them; and, as a consequence, your samples always look clean and new.

The advantage of our case, in particular, is that any sample, from 20 x 24 to the *petite* size, can be readily displayed in it.

When our showcase was complete our old glass showcase went right to the auction store, and that was the last I saw of it.

PROFESSIONAL ETIQUETTE.

BY W. F. VAN LOO,
Toledo, O.

As devotees of the beautiful art of photography, do we fully realize that we have not obtained from the public that consideration which is extended to the medical, dental, or legal fraternity? True, to become a photographer a collegiate course is not necessary, and we may, therefore, not be entitled to the same consideration. Our business, however, enables us to take nearly everything (with the camera); then why not adopt a professional code, and try to secure that recognition from the public to which we are entitled. Our patrons too often dictate our methods of doing business; we allow them to have their way for the simple reason that if we do not our competitor will. A constant effort to give something more than the other fellow is the cause of our present condition. How can we better ourselves?

We have our national Association, where we meet to show and see the good things that are made. We have our State associations with similar purposes and ends. Now, why not have local associations in

Van Loo & Frost, Toledo, O.
THE FUNNY STORY.

every city and village where there are two or more photographers?

Unite on business principles. Determine what shall constitute a sitting (one or two good negatives). Decide upon what conditions the customer is rightly entitled to a resitting without extra charge. Adopt

such other rules as all are familiar with, which will promote the prosperity of those concerned. The physician gets paid for every call he makes, successful or not. The lawyer's fee depends on the amount of time devoted, successful or not. The dentist conducts his business on similar principles. Then why shall not the photographer receive pay for each and every sitting he makes which he considers successful?

We can do it by uniting; we can unite by avoiding constant warfare with each other in the various schemes, ticket deals, avoiding personalities in our advertising; by pushing our own business without attempting to crush our fellow-workers also. We should extend that courtesy to each other which demands the respect of the business and social world. Extend the right hand of fellowship to your brother photographer whenever and wherever you chance to meet, and let the public know that, while competitors in business, we are united for the good of our cause.

RETOUCHING FOR "ARISTO" PRINTING.

BY E. E. SEAVY,
New Castle, Pa.

THERE has been so much said upon the subject of retouching, and far better articles written than I am capable of writing, that I fear to touch the subject.

But retouching for "Aristo" printing is somewhat different than for other work, and is certainly a very

important subject at this time. To have retouching look well on "Aristo" prints, the first thing necessary is to have the proper kind of a negative. It should be fully timed and carefully developed; soft, yet full

E. E. Seavy, New Castle, Pa.
HAND POSING.

of detail, as it is almost impossible to have retouching look well on an undertimed negative.

The retouching should be done with a very fine point and delicate touch, then the print will not look

rough and scratchy, but round and soft, which is the most desired effect.

One of the greatest helps toward securing the proper amount of retouching (as a rule there is all too much) is to have a proper surface to retouch upon. There are many "varnishes" and fluids in the market, but the majority of them are too thick or have so much body that they actually cause increase of the density of the negative wherever they touch, and in the delicate Aristotype print show their influence most unpleasantly. The retouching varnish should be full of bite, but with as little body as possible. Try this or any modification of it that suits your style: A. Gum dammar dissolved in gasoline. B. Rosin thinned with turpentine. Mix A and B together. For use take one ounce of the mixture to four ounces of turpentine, more or less, to suit the grade of negative you make. Use it with thought.

PHOTOGRAPHING CHILDREN.

BY T. ZWEIFEL,
Duluth, Minn.

To produce children's pictures successfully, the main requisites are a quick lens, a little tact, and lots of patience.

I first make up my mind what I intend to represent, and fix up the accessories accordingly; then I put my little subjects in place and watch my chances. For children who are quite young (say about two

years old) it of course requires considerable coaxing, buying of candy, etc., in order to have them do their parts, which are somewhat tedious for them. I aim in all pictures to have the expressions and positions illustrative of the titles I expect them to represent.

T. Zweifel, Duluth, Minn.

GOOD NIGHT.

This is about all that I can say in regard to the making of such pictures; but before I close I want to say that the photographer who neglects children photography makes a mistake. We have no better subjects than children, and their pictures in natural and easy poses, and with good expressions, will attract more attention in any one's show window than pictures of any other class of subjects. Consequently they make the best of advertising mediums. All mothers admire good pictures of their offspring, and if you please them they will naturally recommend

you to their friends. The little extra pains and patience (and possibly plates) you may have taken in securing good effects will more than be repaid.

Now, when you advertise that you make "children's pictures a specialty," as many do, do not let the specialty rest on your letter-heads or in the newspapers, but put it in your work by close observance of the little ones while under the skylight, and catching them just at the right time when full of life and expression. Do not make a long face, or forget that patience is an indispensable requirement in children photography. When some fond mother comes with a group of little youngsters, with perhaps a dog thrown in to complete the picture, go at it cheerfully, and never mind an extra plate if you think you can improve what you have already exposed. It will pay you in the end by your receiving a larger order than was at first intended, and a call for some duplicates later on, to say nothing of the new patrons who will follow.

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In my opinion, pyro stands at the head of all developers of dry plates, and I am much mistaken if Merck's pyro, when known, does not lead all brands of pyro."

W. H. SHERMAN,
Professional Photographer, Milwaukee.

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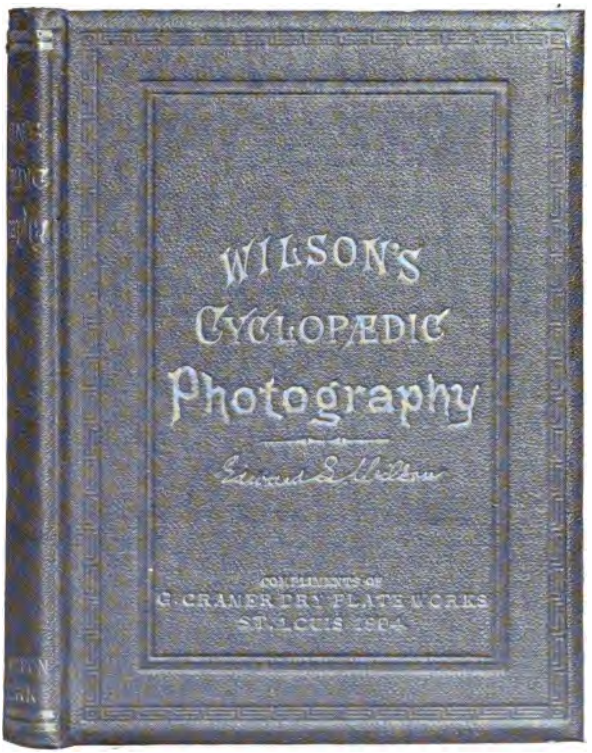

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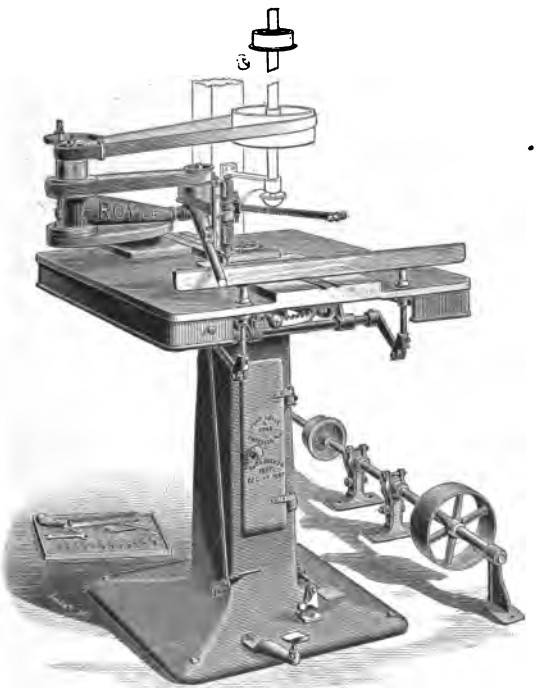

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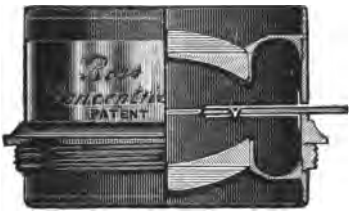

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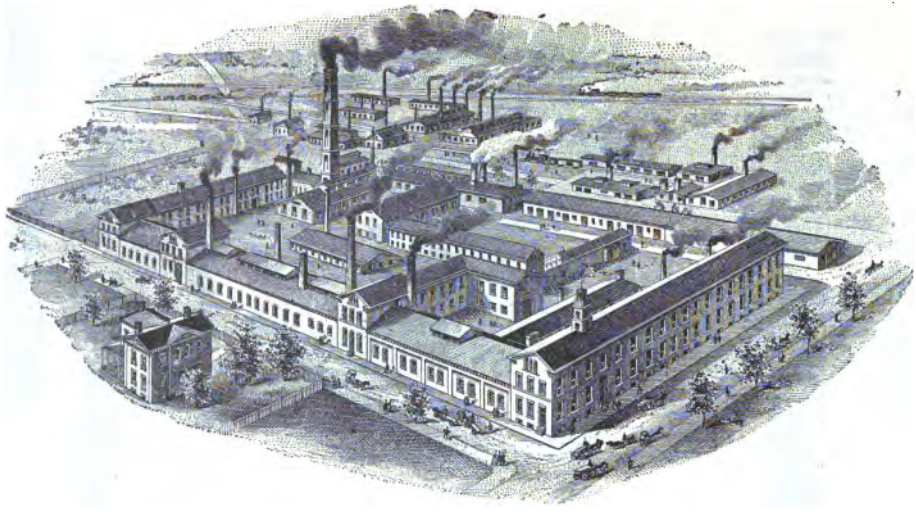

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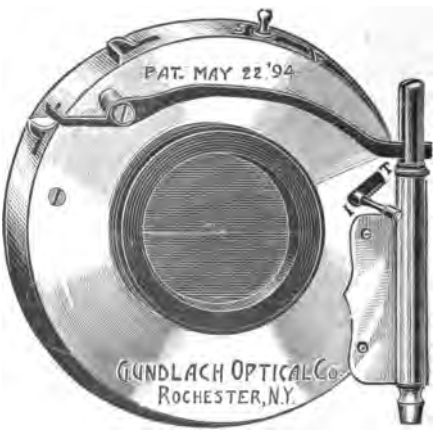

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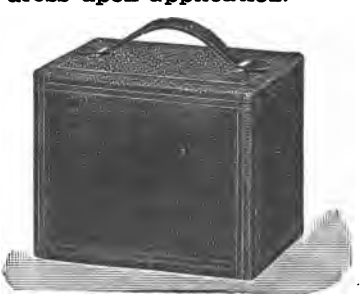

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ST. LOUIS CONVENTION 1894	EXHIBITS	OHIO CONVENTION 1894	EXHIBITS
AMERICAN "ARISTO"	178	AMERICAN "ARISTO"	55
Gelatine Papers. . .	7	Gelatine Papers. . .	3
Other Papers . . .	4	Other Papers . . .	2

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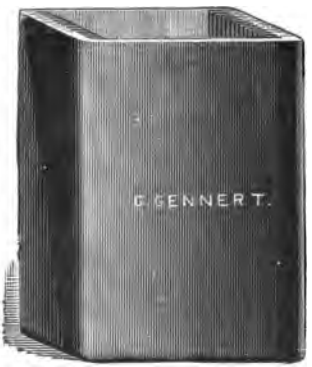

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